

How  
BOYS *and* GIRLS  
CAN EARN  
MONEY



C.C.BOWSFIELD



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HOW BOYS AND GIRLS  
CAN  
EARN MONEY

*By the Same Author*

**MAKING THE FARM PAY  
WEALTH FROM THE SOIL**

Each, \$1.00

# HOW BOYS AND GIRLS CAN EARN MONEY

By  
C. C. BOWSFIELD  
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"Making the Farm Pay", etc.*



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## PREFACE

WHEN I began writing for the newspapers on this subject of how boys and girls can earn money I was doubtful of the wisdom of my efforts. It was an attractive theme, however, and several editors told me that the feature was one of the most popular in their papers. My fear was that I might stimulate avarice and cause a neglect of wholesome studies and duties by presenting the idea of money making in an alluring way to school children who did not need to aid in the support of themselves or their homes.

After giving due consideration to the matter I found that there were weightier arguments on the other side. I became entirely satisfied that I could perform a service of the highest usefulness and importance by imparting correct information on money earning methods and helping to guide young folks in the right direction.

The majority of people are brought in contact with the commercial side of life by necessity, more or less urgent, at a very early age. Whether it is a pressing necessity or not, every young person should have practical knowledge of how to get on in the world, and such knowledge should come in the school age, before the hour for choosing a vocation arrives.

There is an almost universal desire for money earning and the acquisition of wealth. This needs judicious guidance rather than repression. A total neg-

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lect of the subject by teachers and writers is wrong. The wise and helpful course is to direct these impulses and desires along practical paths toward good ends and high ideals.

There are bad ways and good ways of earning money. There are also unworthy purposes in the acquisition of wealth. Assuming that we cannot ignore the common necessity of industrial activity, it is not merely a wise thing but it is something of a mission to help boys and girls to start right and to make the best of their opportunities, instead of allowing them to drift or blunder into any kind of work. Some kinds of labor are better than others for both body and mind. Some are more elevating than others. One class of work pays much better than another, even when moral considerations are balanced. Some jobs may be taken up and laid down without much waste of time. Others need a longer test. Then again, a writer looking into the subject learns of many practical things that a boy or girl will not think of and cannot know about without help or long study and experience. In view of these facts we see that parents and teachers also have a large responsibility in helpfully directing young people to such work.

I have aimed to be practical and to cover a wide range of subjects and conditions. There are suggestions for young people in all walks of life, some of the plans covering city and suburban work and others farm projects. In connection with these methods of earning money there will be a broad train-

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ing in domestic duties and even in the responsibilities of citizenship. The experience gained by young people who follow the plans laid down in this work will prove a stepping stone to success, for it will most certainly indicate aptitude and fitness for some permanent vocation.

C. C. BOWSFIELD.



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# HOW BOYS AND GIRLS CAN EARN MONEY

## CHAPTER I

### PLANS FOR AMBITIOUS YOUNG PEOPLE

MANY young people of both sexes feel the need of earning money as they go through school, or it may be they are compelled to give up schooling in order to support themselves. Thousands of boys and girls in their teens have to bear the burden of contributing regularly to the maintenance of their homes.

In stating these facts and discussing the situation upon which they are based I have little to do with theory. We are dealing with a concrete condition. A majority of young people are face to face with the stern reality of earning a living, or at least of contributing toward family support.

It is one of the most inspiring features of American life that many of the great leaders rose from the ranks of the poor. Their education came through patient application during and after their days of toil. Nothing could be more noble or more praiseworthy than such toil, especially when it is coupled with the

necessity of aiding parents and brothers and sisters. Circumstances of this kind are very common, and it will pass without argument that the best character and the greatest capacity for usefulness are founded upon the strenuous duties which boys and girls are compelled to face at an early age.

It is best for character development and the building of permanent success not to depend a great deal on sympathy or friendship. It is proper, however, to ask for work and then to give a fair equivalent for the payment received. Young people will find many friends who will strain a point to give them employment, or who will show them where odd jobs of work may be secured. Perhaps boys can find a greater variety of chores than girls can. Usually it is easier for them to hustle around and ask for work. On the other hand, girls have an advantage in being able to do much of their own mending, hat trimming, and similar tasks, and they take naturally to certain lines of domestic work for which boys are not adapted, but which pay very well. Both boys and girls have a good field for earning money in getting subscribers to newspapers and magazines, or in selling books and household articles. Therefore it may be said that the race for success is about even.

No boy or girl need hesitate about going to high school, preparatory school or college because of a shortage of money. At a women's college a canvass was made to ascertain what girls were partly or entirely self-supporting. It was learned that a great

many were obliged to earn a share of their expenses in college. A few had no outside means whatever. They were working their way through a full course by taking care of the library, waiting on table, doing odd jobs of clerking or bookkeeping, canvassing for magazines, writing news or short stories, helping at housework, and other occupations. The conclusion was reached that girls had equal opportunities with boys for supporting themselves or piecing out the family income.

There are any number of legitimate plans by which a young person can earn money, especially in a large town, and of course most of the colleges are in good-sized cities. A girl who is familiar with stenography and typewriting has a decided advantage when it comes to earning a little extra money. She has her Saturdays and two or three hours on other days to devote to customers. There are many professional men and small business concerns that require a stenographer and typewriter for an hour or two daily. The pay in such cases is sufficient to meet a girl's living expenses. Sometimes a good student gets employment in doing extra work in the class rooms, such as correcting papers and substituting as a teacher. Occasionally a young woman can earn her college expenses by reading to invalids. One of the encouraging features about this kind of an effort is the general willingness to help deserving young people to work their way through school.

Methods by which boys or young men can earn

their way will almost suggest themselves. Clerking during busy hours is a common form of employment among college boys. Some young men do nicely as train hands either on elevated or surface roads. A few get odd jobs of reporting on the daily newspapers. There are numerous chances in a great variety of avocations. It goes without saying that a student of either sex to make a success in this way must have a strong constitution. A delicate person would break down in carrying the double burden. There must be regularity of hours for sleep, meals, employment and recreation. However, any ambitious young person in good health can safely devote two hours a day to writing, clerking, or as helper in almost any line of business, besides giving proper attention to studies. It is also reasonable to undertake a little more than this amount of work on Saturdays, as school studies are not likely to interfere then, and Sunday will afford time for rest.

Every young person should try to have a savings account in some convenient bank. A few dollars put away every year will soon grow into a competence. Young men and women who are earning wages should aim to save ten to twenty per cent. of their incomes. This will make them independent by the time they have reached middle-age. Money at compound interest increases with astonishing speed, and besides giving security to the owner enables him or her to buy a home and make other good investments in due time. It is a serious mistake for boys and girls to become ex-

travagant and spend their earnings without trying to build up a bank account against future emergencies or for investments in valuable property.

Computations showing practical results of a savings account in accumulations of monthly deposits of from one to twenty dollars in one to ten years, when interest is compounded semi-annually at three per cent. per annum.

Monthly Deposit	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
\$1	12.19	24.75	37.67	51.00	64.72	139.80
\$2	24.39	49.50	75.37	102.03	129.49	279.73
\$3	36.58	74.25	113.08	153.06	194.26	419.68
\$4	48.78	99.01	150.79	204.11	259.06	559.67
\$5	60.97	123.78	188.47	255.13	323.81	699.58
\$6	73.17	148.54	226.20	306.19	388.62	839.58
\$7	85.36	173.29	263.90	357.22	453.37	979.52
\$8	97.56	198.06	301.60	408.26	518.15	1119.50
\$9	109.75	222.81	339.28	459.28	582.91	1259.40
\$10	121.95	247.57	376.99	510.33	647.70	1399.38
\$11	134.14	272.33	414.70	561.37	712.47	1539.31
\$12	146.34	297.10	452.43	612.43	777.28	1679.34
\$13	158.53	321.85	490.11	663.47	842.06	1819.30
\$14	170.73	346.62	527.82	714.49	906.81	1959.21
\$15	182.92	371.37	565.51	765.52	971.57	2099.12
\$16	195.12	396.13	603.22	816.58	1036.38	2239.14
\$17	207.31	420.90	640.93	867.61	1101.14	2379.07
\$18	219.51	445.65	678.62	918.64	1165.91	2519.02
\$19	231.70	470.41	716.33	969.70	1230.70	2659.01
\$20	243.91	495.18	754.05	1020.75	1295.50	2798.98

## CHAPTER II

### ODD WAYS OF EARNING MONEY

THE sale of old newspapers and magazines furnishes pin money to not a few boys and girls. Canvass your neighborhood for the privilege of collecting these articles at regular intervals, and people will be glad to save them for you instead of burning them up. Store the papers in your attic or basement until you have enough to make it worth while to sell to a junk dealer.

In a well-known town in the Middle West there is a boy who earns considerable money assisting housekeepers clean house. He is not afraid to work, and people have found out that when he cleans a rug or sweeps a floor, he does it thoroughly. He works nights after school and Saturday forenoons. He reserves Saturday afternoon for his recreation and play-time. He charges 10 cents an hour for his time.

Washing windows is the most particular job which this boy has to do. He furnishes his own cloths for this purpose, being careful to use only such as are free from lint. He has learned that he can get the best results by using two kinds of water for cleansing purposes. He uses hot, soapy water in one pail for the first washing. For rinsing he uses hot water into which he has put a tablespoonful of ammonia.

Many people leave their flowering plants in their yards each fall to be destroyed by the frost just for the want of a place to put them. A wide-awake boy can make a window box for plants with a very little trouble and almost no expense. A soap-box to which has been nailed four boards about three inches wide and two and a half feet long for standards, is all that is necessary in the way of carpentry. Paint the box green and line it with waterproof paper roofing. The lining, however, is not absolutely necessary. Fill the box with good, rich soil and place it before your customer's sunniest window. The plants may now be taken up and placed in this indoor garden spot, where they will bloom all winter.

The vacuum-cleaning business may be made a profitable one by two boys. Before investing any money in a cleaner, canvass some of the homes in your city or town and secure your customers. From 25 to 40 cents an hour can be charged for cleaning carpets and rugs, according to the size of the cleaner. The cleaner that is run by hand is the best for you to buy as an investment. Two boys will earn a good percentage on the money invested by operating the vacuum cleaner during the hours after school and on Saturdays. It will take one boy to run the cleaner while the other does the cleaning.

Almost every home acquires quite a considerable accumulation of rubbish through the winter and spring months, which for want of better place, is dumped in some out-of-the-way corner of the yard,

there to lie until opportunity offers for someone to carry it off to the nearest public dumping ground. Often, boys will be gladly engaged for the job if they ask for the work in time.

It is not absolutely necessary that you have a wheelbarrow or hand cart for this work, as in many cases the homes where you are hired will provide such a convenience; if not, the rubbish that can not be burned can be carried away in baskets on the installment plan.

The way to go about securing jobs of this kind is to call from door to door and politely ask if there is not some rubbish in the yard that you may remove for a small sum. If your eyes are sharp enough to note unsightly piles of refuse or scattered articles of no account in the yard, before you talk with the occupants of the home, all the better. In that case tell them at once that you should like very much to be permitted to get rid of such rubbish (pointing it out), and that it will cost only 10 cents (or whatever your estimated price may be).

I would advise boys and girls who are looking around for openings to make money to visit first of all farmers who have a variety of products, including vegetables, berries, orchard fruits, poultry and dairy cows. Such a place will have plenty of work for extra hands all summer. If young people show that they are determined to be useful to their employers they will get an unlimited amount of choring to do.

Boys and girls have been known to clean up considerable money by making labels for canned fruits and

vegetables. This is a simple piece of work, but it is sometimes very vexatious to a housekeeper who is driven with manifold cares. It is possible to secure gummed paper at the stores which deal in such goods. This paper can be cut into the desired sizes and the lettering made either with pen and ink or a rubber stamp. The work is as enjoyable as a game and can be done in the evening or at odd times.

Nearly all women have use for such labels and would be willing to pay a fair price for having a supply of them. If boys and girls will make a few samples and go around the neighborhood showing them they will readily secure a great many orders. If it is not convenient to get gummed paper the gumming can be done with ordinary mucilage. Use sheets of paper about letter size and put on the mucilage before cutting up for labels. Any fair quality of paper will do and there may be different colors.

If a young person can find a pretty large neighborhood, either in town or country, where there is no competition it might pay to buy a cheap printing press for making labels. Of course the work can be done rapidly and cheaply with such facilities. If the work is done with a pen care must be taken to have neat lettering.

One girl, of many bright ideas, solved the spending money question by applying for the work of making the school posters for advertising ball games, debates, entertainments, and similar events. This work was usually let out to a local printer. But she volunteered

to work out clever, novel ideas and to make up really striking posters for advertising purposes. Some of her classmates were a bit skeptical as to her ability, but they finally agreed to let her try her hand. She worked hard at the posters, and succeeded so well that she won the commendation of the whole community. Her work helped the school as well as herself; for the good posters advertised the school affairs so well that the attendance was larger than usual, and she had no difficulty in securing all the work of that kind for the entire school. Moreover, the posters were so attractive that many of her fellow-students desired copies for their rooms or dens, and she was almost overwhelmed with orders.

A boy who needs to earn money in order to help the family or to pay his school expenses should hunt up a few regular customers who will give him jobs. There are people both in town and country who can furnish such employment. City housekeepers or tradesmen need extra help on Saturdays or for an hour or two in the morning or evening.

The youth might write out a list of jobs that he could give time to and then make a canvass to see who would employ him. There are many people who would be glad to hire a boy for the whole winter to keep their walks clean.

In order to gain some regular customers for this work, a boy should make house-to-house calls, notice the walks about each place he would be required to keep clean, and name the price for each cleaning,

charging from ten to twenty-five cents according to the length of walks and depth of snow. But as promises should always be kept, do not secure too many customers, for each one must be cared for properly. Different people have different kinds of work, and a little effort will secure a number of customers.

Many girls like to do fancy work, but I wonder how many have found out that the art of practical darning is quite as fascinating! No doubt most girls have followed it in designs on linen and found it enjoyable and interesting; but when applied to stockings or underwear it seems such a homely accomplishment that perhaps many have not thought, or cared, to acquire it, yet it holds good earning possibilities. That the mother of a family where there are several pairs of restless little feet to clothe would appreciate help in this line goes without saying. But the most profitable of this work is found in the darning of silk hose and underwear. Many society ladies, as well as busy working women and girls, would gladly pay a good price to have this work done satisfactorily. It is the doing of anything satisfactorily that brings desired results. A silk garment of good quality can be made almost as good as new by careful darning in time, and a great many cannot afford to cast them aside without mending.

In choosing work, it is always wise to select something that is really necessary — indispensable, if you can manage to get hold of it. If you can make something that people are obliged to use every day you will,

of course, find a more ready sale for your work. Darning hose may not be an absolute necessity for many women and girls, yet as a matter of economy it will appeal to the wise one — and the majority have to practice economy. A goodly number may feel that they can afford to wear a good quality of silk hose and undergarments, but not many feel that they can discard them while the greater portion is still whole and good; neither have they time, perhaps, to do the darning themselves. How welcome, then, is the deft darner — how necessary — and how willingly she is paid the modest sum asked for the service. Any city girl can find plenty of darning to occupy her spare hours, and she need not often go beyond the limit of her friends and acquaintances.

## CHAPTER III

### SELLING LISTS OF NAMES

THERE is an opportunity in every city and village, and all through the country districts, for boys and girls to earn money in connection with the universal campaign of bankers to promote thrift and encourage saving.

For some years banking organizations everywhere have been trying to educate young people in habits of economy. They do this in a public-spirited way, for they realize that it is a national necessity. At the same time they naturally and properly gain some benefit from the effort. It helps the business of savings banks, but far more it helps the fortune and character of those who come under the influence of the movement.

Thousands of boys and girls are needed in this work and they can earn quite a large sum every year by reporting to bankers who are most directly interested the names of young people who have no savings account. That is all the work involved. It is not a difficult thing to find out what children or young men and women in a community fail to exercise the saving habit. The names and addresses are what bankers are willing to pay for.

The price paid for name lists varies, according to circumstances.

Nearly all savings banks supply money receptacles and printed matter to all probable patrons and will push a telling campaign to promote saving as soon as they get the names. In a farming community the work may have to be confined to school districts if others are doing the same thing, but in a village or city a young person making such reports will naturally be allowed to get the names wherever they can be found. The banks will not pay for duplicates.

A boy or girl who takes up this task should make and keep a complete list of those in the town or neighborhood who have savings accounts, and another list of those who have not started to save. These lists will change from year to year and will be in demand many times. Such lists will be useful in more ways than one. They will have a large money value to the person owning them, and instead of being useless after the first report they will become more valuable as time goes on, provided the necessary changes are made.

The same list of names that bankers desire will also be useful to merchants, especially dealers in toys, games, and many other articles for young people. While the work is honorable and useful it would not be right to sell the information to more than one banker in a town, but there are several classes of business people who are not in competition that will be glad to buy the lists.

Business people who send goods by mail, including

merchants, publishers and others, are constantly looking for new lists of names, and always pay well for them. When a boy or girl is making up a list of those who do not have savings accounts it is easy to make still another list of families in the community to whom merchants would like to send circulars or announcements of some kind. These lists also grow in value, and when a young person is known to have them in good shape there will be frequent calls for them, with an assured gain in earnings every year. About once a year they can be sold to merchants in the neighborhood, for even in a farming community a single year brings many changes. Lists of names to be worth buying must be accurate, and hence it is necessary to keep them up to date.

Any intelligent boy or girl twelve years old or more who lives in a country district can get into this business of furnishing names and do well at it, if the field is not already occupied. Political candidates almost every year wish the names of all voters in a township and pay liberally for accurate lists. Insurance agents, real estate dealers, mail order houses, grocers, painters, carpenters, masons, and business people generally will gladly buy these same lists. There is really a tempting opportunity along this line, and it costs little or nothing to make the effort.

## CHAPTER IV

### USING TALENT IN PROFITABLE WAYS

A YOUNG woman now attending an eastern college turned her domestic science course taken in the public schools into a trip to Europe. Every Saturday morning she baked cakes, pies and doughnuts which she sold to neighbors who were regular customers. They were only too glad to encourage her in this enterprise, as well as to have the wholesome home-cooked food she prepared. During her summer vacations she embroidered underwear and sold the articles at the regular retail prices for such garments. Hers is a case in which knowledge of the plain and homely arts led to an opportunity for culture and a broader education which will be a life-long benefit.

One Maine boy is working his way through college by selling apples. His home is near enough to a college town so that he can make deliveries of fruit on Saturdays. Each Saturday morning he loads the market wagon with apples and drives to the neighboring city. By selling directly to the consumer he realizes big profits. Instead of selling at the stores for 50 cents a bushel he sells at dwellings and receives \$1 to \$1.50. A net profit of from \$5 to \$10 is realized on

every load marketed. Not only does he sell apples, but poultry and eggs, sausage, butter and other supplies that he is able to procure at home or in the neighborhood. He says that farmers lose a lot by not marketing their own produce and that many articles which are wasted or fed to the stock would bring a good price if sold to private customers in town.

With simple homemade apparatus, any boy or girl can place initials or designs on tumblers and other glassware, and do it in such a manner that the work will compare favorably with that of professional glass engravers.

The only apparatus required is a wooden box about 8 inches by 5 inches by 12 inches with the bottom removed and one end hinged. On the inside, four strips of thin wood are nailed, so as to form two one-eighth inch grooves, exactly opposite each other. Two heavy rubber bands with small wire rings attached to them are fastened to one side by staples. On the other side of the box are two small tacks on which to fasten the rings.

The tumbler or glass piece to be engraved is prepared by pasting a piece of heavy paper on it, with the design or initial cut in it. Then the shape of the glass is cut with a sharp knife on a piece of heavy cardboard large enough to fit into the groove. When this cardboard piece is slipped into the groove in the box, place the glass in the hole, keep it in position by the rubber straps, and you are ready to begin the engraving.

Be sure that the surface of the glass inside the box,

that is not to be engraved, is covered with paper. Then put into the box a few tablespoonfuls each of lead shot and powdered emery. Both of these may be procured at any hardware store for a few cents. Shut down the cover and holding on to it, shake the box vigorously to and fro, for some time. When you remove the glass, you will find, on peeling off the paper, that the design or initial has been ground into the glass by the action of the emery and the lead shot. As you shake, the emery is imbedded in the lead, forming numerous sharp pointed balls which, knocking against the glass, grind the design or initial on its surface. One filling of lead shot and emery will do for an indefinite number of engravings.

Glass engraving could easily be made to furnish pocket money for any boy or girl. A little booth with several boys or girls equipped with the necessary apparatus, would prove an attraction at a church fair. If it was advertised beforehand, your friends could bring their glassware to be engraved.

A boy or girl can earn pin money by making and selling mucilage. Here is a formula for an excellent mucilage: Soft water, three ounces; gum arabic, one ounce; glycerin, one-fourth of an ounce. The gum arabic and glycerin can be purchased at a druggist's for about 5 cents if you furnish the bottles. Pour the three ingredients into a common vessel, such as a small tin pail, set the vessel on a stove and stir them well with a stick while they heat. When they are well mixed put the solution into a large bottle and keep the

latter corked so that the mucilage will not thicken by exposure to the air. If it does thicken, hot water will thin it.

By using the above proportions a larger quantity of mucilage may be made in the same manner at one time. Before you are sure of your trade it will be best not to make up more than double the quantity named, which will furnish you with sufficient liquid for eight one-ounce bottles. These will usually sell at 5 cents each, bringing in, for eight bottles, 40 cents, with an outlay of about 12 cents, including bottles.

The small bottles are filled from the large one, or direct from the mixing vessel. If your druggist has none of suitable shape to sell you he will generally order some for you, as he knows where to get them.

A girl who was out of health was obliged to give up a position she had secured as clerk in a dry-goods store and was told by her doctor to keep out of doors as much as possible. How to act on this prescription and yet help in earning her living, something which seemed almost essential considering the financial condition of her family, was a problem which might have puzzled a wiser head.

Then one day as she walked in the park she stopped for a drink at a spring, the water of which had a reputation. It was deliciously cool and the touch of sulphur it contained was supposed to be healthful. As the girl drank luxuriously, she thought she saw a chance.

She visited a number of families living at a con-

venient distance from one another, asking permission to supply them with the sulphur water, a gallon a day for twenty-five cents a week, and after a day's canvass she had twenty-five families on her list. With them she made a start. She hired a decrepit horse and an old wagon, bought a number of jugs on which she painted the names of the families to which they were to be delivered, and started in. Soon enough families were on her list so that she was making more than she had been earning in the store, after paying her expenses. Now the business has grown to such proportions that two younger brothers act as her assistants. They own a pair of good horses, and a new wagon, and, best of all, the originator of the enterprise is a picture of blooming health, due to her outdoor life.

I read not long ago of a boy of 13 who had \$215 in the savings bank that he had earned running errands. I have heard of another boy who makes a regular business of running errands and has a number of customers. His work pays quite well. He has neat little cards giving his name, address and telephone number, and it is surprising to see how many people need his services and are willing to pay a matter of 25 cents for a little shopping errand or some other chore that does not take more than an hour. A boy doing this line of work needs a bicycle, and when thus equipped he can cover a great many miles in a day and do innumerable errands about town. Many small shopkeepers would be glad to employ such a messenger at odd times, but particularly on Saturdays.

Young people who have their minds at work on suitable money-making plans will find that each season offers special opportunities. A wide-awake youth living in Chicago says:

"A good way for a boy to earn money in warm weather is to find and sell bait to fishermen. Every summer I spend my vacation on the Kankakee River, where there are many campers and boarders. I can catch any number of minnows in the shallow parts of the river and in small streams. These I sell at from 10 to 20 cents per dozen, according to size. I also catch frogs for live-bait casting and sell them at 25 cents a dozen.

"When I lived in a little Indiana town, I owned a small printing press with which I earned quite a bit of money every week, printing stationery, calling cards and handbills. A boy of 10 years or more can easily clear \$100 a year with a printing press."

Another hustling youth who feels the need of earning money to help out family and school expenses, tells this story of experience:

"I bought male and female rabbits from a friend of mine. It was not much trouble to care for them, as they lived on such vegetables as carrots and lettuce, with a little hay. I found them very productive animals and in less than a year had sold ten pairs at \$1.50 a pair. I had no trouble in finding customers. I still have my original stock and will raise young rabbits right along. If I had more room it would be easy to get quite an income from them. Besides my rabbits

I keep a boat, for we live near a lake. This boat I rent to fishermen who come here, and last summer I cleared \$20."

Florence and Albert live in a New England country town that is visited by hundreds of vacationists each summer. Here is how they have taken advantage of this fact and built up a neat little summer business that nets them a good deal of spending money.

Once a week they visit the various boarding houses where the vacationists stay, with baskets of souvenirs. These souvenirs are all their own handiwork, made during winter spare moments.

Almost every vacationist takes back to the city one of Florence's "Pine Pillows." These are nothing but muslin pillowcases, twelve inches by eighteen inches, filled with pine needles. They are very fragrant and refreshing and, as Florence says, when selling them, "They carry the scent of the summer woods to the city."

The little birch-bark canoes, fitted with pillows and paddles, that Albert makes and sells, are very pretty souvenirs. They are only six inches long and consist of two pieces of birch bark cut in the shape of a canoe and stitched together. Two match sticks are glued in place for seats and the canoe is fitted with tiny paddles, whittled from thin wood. The two little sofa pillows that go with each canoe, are the work of Florence. They are about the size of a postage stamp, of silk cloth and stuffed with cotton.

Last summer, with some money he had saved up,

Albert purchased a small camera. He snapped the most beautiful scenes in and about the town, and developed and printed the films himself. Some of the pictures were printed up as post cards, while others were mounted in neat birch-bark frames. These sold rapidly, and when he added the money derived from their sale to what he had, he was able to purchase a larger camera. With this, he took group pictures of the vacationists, collecting the money at the time the pictures were taken, and mailing the pictures, when they were developed and printed, to the city addresses of the vacationists.

Albert also makes money renting bamboo fishing poles and selling bait. He knows where the best fishing is to be found and often he is hired by a group of fishers to spend the day with them and guide them about the country.

This bears out the statement that there are many ways of turning an honest penny and building up a bank account. Garden work is universal just now, and in this line boys and girls can find all the employment they wish, either in town or country. There are chores innumerable for young people of ambition and energy.

## CHAPTER V

### DEVELOPING A NEW BUSINESS

A NEW business was developed by a bright girl, fourteen years old. She saw some azaleas at a friend's house. They were the first she had ever seen blooming indoors. There were six of them, and when they were through blooming she bought them, paying all the money she had, \$1. She put them in a hotbed and afterward in open ground. They grew strong, and in the fall she sold them to a florist for \$6.

Getting names of florists and the people who bought flowers, she began buying choice plants and nursing them back to bloom after they had become old. It takes some months to cure a plant which has been forced to bloom against nature, but she has learned much in six years, and sells thousands of cured plants every year.

One day a boy's grandmother called him up and requested him to go to the drug store and get her a pound of horehound leaves, as she was going to make some cough syrup.

"Don't let them give you anything but the real horehound leaves," she cautioned.

At the drug store Dick mentioned his grandmother's

cautioning words, and the druggist picked out three or four perfect leaves to show Dick that it was the real article.

"Why," said Dick, "that same stuff grows up there by our house on the vacant lot, and out in the edge of the street, too."

"No doubt," replied the druggist. "It has run wild from plenty of old gardens in this town. Why don't you pick what you have up there and sell it? I'd be glad to get the home-grown leaves and be absolutely sure they were pure. Lots of grandmothers like to make their own horehound syrup at home."

It was still early spring, and Dick went home directly after he had delivered his package of horehound and looked over the vacant lot. The clumps of horehound were only just coming through the ground. He found it no trouble to get the consent of the owner to cultivate the crop, as he lived in a distant part of the town.

Every big rock, every clump of weeds, and all grass and dandelion were removed from the lot and in their places clumps of horehound were set, taken from the side of the street. He placed plenty of fertilizer on his patch, and wherever possible, he dug slightly about the roots of the big clumps. All the old dead stalks were removed from the plants and placed in the soil at the roots.

Dick spent many hours after school on his horehound patch, and by the middle of June the crop was fifteen inches high and ready to cut. He waited till

after a nice rain, and cut it as soon as it was dry, in order to have it clean. He used an ordinary scythe to cut the crop, and dried it all day in the sun, then spread it out on the clean garret floor for several days to thoroughly dry and cure. When ready for sale, he had seventy-five pounds of prime horehound, which sold to the local druggist at 25 cents a pound.

A boy or girl can have no more interesting pets than the beautiful game pheasants. The little chicks they will bring off each spring will be a never-failing source of delight as well as substantial profit. There is always a good demand for them.

Autumn is the best time to buy a pair of pheasants, for they are always much cheaper when half grown, and you can give them a chance to get acquainted with you and their new home before the laying and hatching season arrives. It is feasible to keep six to a dozen pairs for breeding purposes.

Hon. James Wilson, who was for many years secretary of agriculture, takes a great interest in teaching boys and girls how to make land pay. He would like to see more young people studying agriculture than there are at present, and he thinks that if boys and girls now living in town had a chance to cultivate a garden and gain a little profit in this way they would learn a great deal that is practical and soon come to love farm life.

Mr. Wilson tells of an experiment that he observed where two town boys worked a small tract of land. The land was plowed and harrowed at comparatively

small expense. Not one foot of it was permitted to go unused. Not a vacant corner was left for weeds to grow in. During the plowing the boys spread manure ahead of the plow and got the soil well mixed with it.

When the ground was ready they marked it off into thirty beds of different sizes, the size being regulated by the character of each vegetable they wished to raise. Each bed was raised about four inches from the level of the ground and was surrounded by a small walkway and a drainage ditch. The ditch could be used for two purposes — to carry off surplus water during heavy rains or to hold water during periods of drought, acting as an irrigating ditch.

In the planting the boys started their first crops with lettuce, onions, radishes, early peas and early potatoes. They constantly watched the moistness of the soil, did their own weeding and their own bug killing. As soon as the vegetables began to head and take on form they went from house to house in the community announcing that a week later they would be prepared to deliver fresh vegetables every morning to anyone desiring them. They quoted the same prices as local grocers were charging. The day before the first sale was made the boys stood financially with the half-acre like this:

Cash invested .....	\$24.85
Indebtedness incurred .....	18.10
<hr/>	
Total investment, not counting own labor.....	\$42.95

They had learned by study and inquiry, while doing the early work, what vegetables should be pulled in the cool of the night, and what just after the dawn. They knew which would wilt quickly and which would keep their freshness long. They rose that first morning of the sale at 2 o'clock, and under the stars, went to the half-acre. They had built a little shanty in one corner and here they had tubs of cool water, trimming knives, dirt scrapers, different colored tissue paper, and cheap ribbon bands.

They drew the vegetables in their proper order, carefully examining each for perfectness. If they found a defective one, it was thrown into a bucket to be kept for chicken feed, or if not fit for that, to be mashed up and worked back into the ground as fertilizer. Every individual piece was washed and trimmed and given a thorough cooling and hardening in the water. Then the vegetables were wrapped in bundles of suitable sizes and tied with the ribbons. Onions, radishes, lettuce, were treated in the same manner.

They were then placed in baskets, loaded on a handcart which they had constructed and with which they went from house to house. They first supplied those who had agreed to purchase. The terms were strictly cash, no credit, and this was absolutely right. When they finished with these families they went to others. The new and novel appearance of the fresh vegetables, so clean, so tastefully put up, attracted many.

Before 9 o'clock they had completely sold out and had almost \$10.

Through the early summer months the boys kept quietly at their work. They were not content with one crop. They found that as soon as one garden plot was used up a second crop of similar nature or a crop of something new could be made to grow on it. Their vegetables kept up the highest standard of freshness and cleanliness the community had ever known, and the partners soon had more customers than they could supply.

Oct. 1 they covered the land with manure and left it to rest during the long winter months. Then they sat down to examine their financial standing. It was as follows:

Investment and all expenses .....	\$ 75.58
Total cash receipts .....	219.05
Profit over expenses .....	143.47
Each partner's share .....	71.73

This is not an enormous profit, but a fine one added to the health and knowledge the boys gained. This was in 1910. In 1911 they increased their land area to one acre and cleared up more than \$400 during the season. They worked three acres in 1912, which paid them \$950 net.

There is not a waste piece of fertile land in the United States that any boy can not work out with the same results if he is looking for work and profit.

One bright boy gives this experience: "I am a

farm boy 13 years old, and as a side line to farming run a number of traps from the first of November until spring. Neighbors are willing to let me go on their land as I have needed to extend my operations. All farmers are glad to have such animals as mink, muskrat and skunks killed. Last winter I cleared \$76 and intend to increase this to double the amount.

"In the spring I start early vegetable plants and sell them for good prices. Last year I had a little plot of popcorn, which in December and January I made into sugared pops and sold at profitable prices."

Another enterprising country boy, relates the following:

"I live on a 90-acre farm, forty miles from a good market. I have fifty pairs of pigeons, which have their nests above the first floor of the chicken house. Every month excepting two months in the winter, I get a pair of young pigeons from nearly every parent pair. For these squabs I average a little better than \$1.50 a dozen. I made \$124 last year in this way. This was above the value of their food. Pigeons are easily kept. They thrive on wheat and corn, with such things as boiled potatoes, bran mash and the leavings from the family table. Any boy or girl in the country, or even with a good-sized lot in town, can raise squabs and clear quite a little money every year. It is easy to work up a nice trade among the hotels and restaurants. Any surplus can always be sold to grocers or produce dealers."

A niece and nephew of mine once sold dahlia bulbs

from their own garden at seventy-five cents to a dollar a dozen. They were working with their Sunday school classes to pay a church debt, and such ready profits proved a very quick and easy method. Dahlias multiply rapidly and the roots may be cut into several different plants, so that such a business is all clear gain.

## CHAPTER VI

### HOME-MADE CANDIES PAY WELL

YOUNG people who are looking for money-making opportunities may establish a regular candy-making trade. There is a constant demand for home-made candies, and in a few weeks a reputation may be gained for the production of pure and wholesome goods.

Quite frequently we hear of people who have secured a living income by this means. Part of the success comes from finding customers and delivering the candy in tasty boxes. For this reason a girl can have her brother or any congenial friend as a partner in the business. Suitable boxes cost anywhere from 1 cent to 10 cents each, and, of course, this item of expense must be considered in fixing the price on the confections.

There is nothing mysterious or difficult about candy-making, and one advantage that a beginner has is the keen demand everywhere for the home-made product. This makes it easy to find customers. If a young woman likes the business she can find bakers and grocers who will sell her candy on commission. In this way a large and profitable trade can be worked

up. Naturally it pays best to make a batch every day and to have the whole thing on a systematic basis.

To get the real French cream fondant put a half-pint of cold water in the candy kettle, then stir in two pounds or a quart measure level full of fine granulated sugar and place over a steady heat. Stir the sugar gently to prevent scorching until completely dissolved. Then add one-fourth teaspoonful of cream of tartar or three drops of acetic acid. As soon as the syrup begins to boil dip a brush in cold water and carefully wash down the granulated syrup gathered on the sides of the kettle. Cover closely and let it steam for a minute or two. Do not disturb the syrup, but let it boil steadily and evenly.

When a little of the hot syrup dropped in cold water can be gathered into a soft lump between the thumb and finger the kettle should be removed from the fire. Turn the contents out on a marble slab or china platter to cool. When quite cold stir with a wooden spoon into a thick, creamy mass, then work with the hands until it is perfectly smooth and will not stick to the fingers. Let it stand twenty-four hours in a stone jar covered with a damp cloth, when it will be ready for molding into creams.

For French creams always use the best of flavorings. No matter how well creams are made if they are not nicely flavored they will not be good candies. With a pure flavoring they will require only a few drops, and a small quantity will last a long time. Color paste made from vegetable and fruit coloring

is not expensive, and if delicately used adds a dainty touch to creams. This should be worked into the candy with the flavoring just before molding. It is an easy matter to have a variety of shapes in molding creams. Decorations, such as nut meats, halves of candied cherries, pieces of citron, etc., are pressed in or laid on top while the creams are moist. Fruit creams are made by putting stoned dates, candied cherries, white grapes and seedless raisins into small balls of the French cream flavored with vanilla.

For chocolate-coated creams cut the chocolate into small pieces and place in a bowl over hot water. A small double boiler is best for this purpose. If the bitter chocolate is used sweeten it with a little fine sugar. Remove the bowl of chocolate from the hot water when the product is melted and stand until cool. Then dip the creams in one at a time, using a stiff wire bent into a small loop at one end. Place the completed candy on oilcloth or paraffin paper to harden. When the chocolate in the bowl begins to thicken warm it again. Before dipping these creams they must be allowed to dry after molding, or they will lose their shape.

A delicious coffee cream may be made in the same way by using a half-pint of clear, black coffee instead of water. For a nice maple cream use a pint of pure maple syrup, a fourth pint of water, a cupful of granulated sugar and a pinch of cream of tartar, following the directions as given for French cream.

An excellent chocolate fudge is made by working into

French cream enough melted bitter chocolate to suit the taste, or the cream may be softened in a double boiler over hot water, and the melted chocolate added. A little melted butter stirred in with the chocolate will make a richer fudge. This can be turned into small pasteboard boxes lined with paraffin paper and left until firm, then turned out and cut into squares or bars.

The common molasses candy is easily made, and in selling it at 20 or 25 cents a pound there is a liberal profit. Regular customers can be secured in the neighborhood. The finer candies will sell for 30 to 50 cents a pound. Home-made confections are in such demand that store prices may be charged. Somebody in nearly every family knows what candy is worth.

Then there are other kinds of candy which amateurs can manage with good results. Crystallized fruit and cocoanut creams are tempting confectionery and add variety to the business.

For the molasses candy take three cups of granulated sugar, pour on a quarter of a cup of water and let it dissolve slowly over the fire. After it has boiled for some minutes add a cup of molasses, pouring very slowly, and constantly stirring. Let this boil up, and then add another half cup of molasses. Stir occasionally as the candy boils, so as to prevent sticking or burning. After a little add a teaspoonful of cider vinegar. Pour it in slowly and stir thoroughly. Just before removing from the fire add a little vanilla

flavoring and pour on buttered pans. A delicious addition to this candy is made by crushing peanuts to a powder and stirring it into the hot syrup.

For crystallized fruit boil two cups of granulated sugar with a cup of water and one-fourth of a teaspoonful of cream of tartar. Test it by dropping a little of the hot syrup into cold water. When it becomes brittle and snaps it may be removed from the fire. Drop into this sections of orange from which all the skin has been removed, white grapes, cherries, bits of pineapple, nuts — in short, almost anything your fancy suggests. Spread on waxed paper to harden.

For cocoanut creams mix two cups of granulated sugar with one-half cup of milk, and allow this to heat slowly until the sugar is melted. Boil five minutes and then add one cup of grated cocoanut. Boil ten minutes, stirring constantly, and pour into buttered plates. This candy takes two days to harden and should be set in a cool place where the dust can not reach it.

If you are going to make fudge, you want a good recipe, and here is one which you would know to be delicious even without tasting it. Put into a granite saucepan a pound of brown sugar and a cup of cream. If you do not live on a farm, the cup of cream may not be forthcoming, and in that case a cup of rich milk will do very well. Stir till the sugar has melted, then boil, stirring as little as possible, till a spoonful of the

syrup dropped into cold water hardens sufficiently so that a soft ball can be made of it. Now add a piece of butter the size of an English walnut and a teaspoonful of vanilla extract. Now with a wooden spoon beat the mixture vigorously. While the candy is cooking you should have prepared a buttered pan, the bottom covered with a half pound of walnuts, cut into rather small pieces. When the candy cracks as you beat it, pour it over the nuts, and cut into squares before it has a chance to harden.

Marshmallows are always popular confections, though they require rather more work than many. Add a teacup of coffee to three ounces of gelatine, and after the gelatine has become moist, place over the fire until it is quite dissolved. In another pan boil a large cup of sugar with a small cup of water, and a dessertspoonful of glucose, if you have the latter handy. If not, add more sugar. When this has become a thick syrup, pour it in with the dissolved gelatine, and mix thoroughly. After the mixture has cooled so there will be no danger of boiling the egg, add the white of an egg beaten stiff and continue beating the whole for some minutes. Allow the candy to cool in the pan, and when hardened set it on the stove for a minute, when it will easily turn out upon a slab. This should cut nicely into cakes which should be rolled in powdered sugar.

Various other kinds of candy may be worked into this project, according to demand and other circum-

stances. Young people have a natural aptitude for this line of work, and those who feel sure of being able to find a few customers among their friends need not hesitate about trying the experiment.

## CHAPTER VII

### BASKETRY INTERESTING AND PROFITABLE

AN excellent opportunity for money-earning is offered to young people in the present universal demand for reed baskets. Basket making has become something more than a fad, because it represents a high degree of usefulness. The new reed baskets are pretty and serviceable, are easily made by young people and sell readily at a fair profit.

To begin with, boys and girls should get a few sample cards of the reeds which are being sold in the larger department stores and by some dealers in plants and flowers. A canvass from house to house with these samples will result in a large and general sale of the reeds themselves. After this business has been carried on for a few weeks it may be best to turn to making and selling baskets. There is a great difference in the prices which dealers are charging for reeds, and it will be well to find a house that will give a reasonably low wholesale rate. Then about 25 per cent. should be added to allow a profit for the trouble of selling. By going at this matter carefully boys and girls can sell the baskets at the lowest market prices and still make money rapidly.

The pretty little reed baskets which ladies are making are wanted in every household. They are a novelty just now and being both useful and ornamental, they will have wide popularity. A young person can make a basket with 5 cents' worth of reeds and sell it for 30 cents. The work does not take more than a couple of hours. Housekeepers who are too busy to go into the matter themselves will gladly pay boys and girls all the way from 20 cents to \$1 for an assortment of baskets, and at the prevailing prices money can be made quite fast.

It might help the business along to have two or three tasty little baskets to show from house to house when selling reeds. These baskets could be sold outright or orders taken for others.

Young folks will find that basketry is an interesting occupation and one which can be made to pay well if carried on intelligently from making to marketing of the articles. The art is not difficult to acquire. Even little folks of kindergarten age will take readily to the manufacture of pretty little baskets.

The attractive products can be utilized for various purposes. There is the fair sized basket, lined with a few pockets, which will serve to hold the weekly mending. A smaller basket is handy for the thread, needles and other sewing implements. Then too, when fruit or flowers are to be carried to an invalid what daintier receptacle could be found for the purpose than a pretty hand-made basket lined with ferns or leaves as a background for the offering? Birth-

day or Christmas candy coming in such a container is doubly welcome to the recipient, so you see there is a wide field for the ambitious boy or girl to distribute these wares at a fair profit.

Materials used in basket making are reed, raffia, rattan, rush, willow and sometimes grasses where they are obtainable. However, reed and raffia are usually given the preference, being both inexpensive and easy to handle.

Nippers, pliers and an awl are the tools required for this occupation, but these are not absolutely essential, as they can be replaced by a pair of sharp shears, a keen-edged knife and a large knitting needle.

For the beginner it is advisable to use the round reed until a certain amount of proficiency in weaving has been attained, after which the splint work may be taken up. Reed is sold in various sizes from number 1 to 15. Number 1 makes up into dainty articles but is a trifle more expensive than number 2, which is used quite extensively.

The reed should be soaked for twenty minutes in hot water or about an hour in cold water. However, if the material has not become pliable in this time, allow it to soak longer.

Should one desire to make colored articles the better plan is to dye the reed before weaving. It is advisable to wear rubber gloves while engaged in this branch of the work which, while it is an important one, is not so difficult as one might think.

Vegetable dyes are obtainable at any place where

the materials for the weaving of baskets are sold. Full directions are printed on each package and are easily followed. Glaring colors are not considered the best for this work; the softer, duller tones blend better and are more pleasing to the eye. If the modern vegetable dyes are used, the material must be soaked for a period of from eight to nine hours in what is termed a "fixing bath." This is a solution of one ounce of alum and one quart of water. The same dye can be used several times with success if care is taken to keep it free from dust and other foreign matter. The article should be colored quite deeply as when dry the dye is much lighter than when wet. Dyes used for cotton or woolen goods give good results.

To realize that there is a continual market for basketry one has merely to note the fact that there are large factories in different parts of the country where a great many people are employed turning out all kinds and sizes of baskets, ornamental and useful. There are large stores which sell thousands of them every year. So long as this is the case there will be an opportunity for boys and girls to get into the business. The sale is not confined to any one season, but is steady the year through, every household being a possible market for from one to a dozen. Young people need have no fear about accumulating a stock of baskets. If they have fifty or one hundred ahead for the Easter season or the holidays they will find the demand is sufficient to take their whole supply. In

fact the only way to make money fast and steadily is to keep pushing the manufacture, making it a means of using up spare time. The selling will not be difficult to manage.

## CHAPTER VIII

### RAFFIA WARES BRING PROFITS

RAFFIA and reed work are much alike. Raffia is obtainable in almost any color for a few cents more than the natural. This being the case it is as well to eliminate the home dyeing process essential with reed work. Raffia is used in the dry state. Unlike reed, it comes in one size only and when a finer grade of work is desired the fibre must be split. This is usually done for the smaller articles such as picture frames, shoe bags, hair receivers, evening bags, etc. For a picture frame, the size and shape required must be formed of cardboard, then the raffia is wound smoothly and evenly around the form. The edge may be bound with a ribbon leaving a loop to hang it by.

Raffia boxes of all sorts take well. Cut cardboard the required size and shape for top and bottom of the box, and a strip long and wide enough for the sides. A round box would be simpler for a beginner. Punch a small hole in the center of the top and bottom circles. Wrap the raffia closely from edge to middle until the cardboard is completely covered. Now sew the ends of the side strip together, taking care that

the circle is exactly the size of the top and bottom of the box. Proceed to wrap with the raffia. Sew the side circle firmly to the base and fasten the lid in two places with ribbon bows. Line the box with silk to match the ribbon and you will have turned out an acceptable piece of work.

Another article both useful and ornamental is the table mat, or a set of them. The raffia is first braided by the yard, then sewed in circular or oblong form until the desired size of plaque has been made. Mats may be entirely of one color or each strand in the braid may be different. Two pieces of material should be taken for each strand in the braid as one is not heavy enough.

A conventional design outlined with raffia on heavy burlap makes an attractive porch cushion. These are quite acceptable to the busy housekeeper who has little time for fancy work, but who desires to have her porch look pretty during the summer months.

An ordinary glass finger bowl may be transformed into a flower bowl when covered with woven reed or raffia. A hanging basket evolved from either of these materials lends another distinctive feature to the summer porch. Little baskets, round or square, padded and silk-lined, make novel jewel cases and are also dainty as luncheon favors when filled with salted nuts or bon-bons. With slipper soles as a foundation, a nice pair of sandals can be turned out by a clever weaver.

When girls go picnicking the hat of raffia is wel-

comed as serviceable headgear. A wire shape may be selected and the wires wrapped carefully with the shade or shades of material desired, then work from the center of the crown outward, using the wire ribs as spokes. Weave the raffia closely and fasten by tacking to the wire with thread the color of the hat. The edge of the brim may either be bound with ribbon or buttonholed with raffia. These hats will be welcomed by many girls who have neither the time nor patience to make them. One worn a few times by the girl with an eye to business will result in many orders.

Now just a word or two regarding the selling of the finished product. A good plan would be to visit the larger establishments, and take note of their prices on articles of this sort. Then figure the cost of your material and labor, and endeavor to sell at the lowest market price, at the same time holding forth the inducement of goods made to order and delivered.

Many private customers can be found by canvassing among friends and neighbors who will be glad to lay in a stock of these pretty, useful things for Christmas. A few purchases of this sort will relieve many a tired housekeeper of the inconvenience of pushing her way through a crowd of shoppers, undecided as to what she wants and often returning home with unsatisfactory selections, hastily made and entirely unsuitable. These dainty baskets are the most appropriate sort of Christmas presents, acceptable and highly prized everywhere. Boys and girls manufactur-

ing these goods will ordinarily find all the patronage necessary among friends, but should there be a surplus stock it can easily be disposed of at shops where the demand for this line of goods will be quite keen for at least a month or two before Christmas, with liberal profits resulting.

Naturally girls prefer to work on the smaller, daintier articles and usually excel in this branch of basketry, while the boys would rather handle the heavier grades such as clothes hampers and market baskets. This is also an ideal occupation for the invalid whose hands are not affected. The small articles appeal to either sex in this condition and are easily disposed of. The time spent working with the pretty reed and raffia will serve to shorten and brighten the hours to a great extent. Long evenings when summer is over will be a good time to add to the stock of articles for the Christmas trade.

If one is successful in disposing of the smaller articles, as undoubtedly will be the case, the inclination will be to branch into the manufacture of larger things. Rugs are a good beginning. Of course a loom will be required. This can be purchased or made at home as desired. If made at home a square of cardboard, or bristol board such as painters use will do. Draw a line over half an inch from the bottom and top edges. Make dots along each line from one quarter to one half inch apart. Make a hole through each dot. A piece of stiff wire should be run from the top dot on the right side to the opposite one on the

bottom row and the same at the left side of the cardboard. A large needle will be required for this work. Thread with raffia and sew from back of right top hole to front of right bottom hole, then bring the needle to the front again through the next bottom hole and draw the raffia up to the opposite top hole again pushing the needle through to the back of the rug. If this procedure is strictly followed the loom will be covered with horizontal lines of raffia. Now, in the old-fashioned darning stitch sew back and forth across the board, looping the raffia over each side wire as a turn is made. As the work goes on be sure to keep it close by gently pushing upward as each row of darning is finished. Later on two or more tones may be combined. These too make useful adjuncts for the summer porch.

A screen also could be successfully turned out if the rug pattern is followed, except that the raffia could be wound around the wooden frames without going to the trouble of making a loom. Sometimes there is an old screen about the place which would become an ornament instead of a nuisance if treated in this manner. When a neighbor noticed the handiwork she might be moved to bring forth an old screen frame of her own which she would like furbished up a bit.

A word may be said about splint work. A description of the making of some of this work will probably help. Let us begin with a square basket. Cut a number of splints into eighteen inch lengths and have them

very narrow. See that there are enough of these strips to measure seven inches when laid side by side on a flat surface, just far enough apart to allow a weaver to go between. Start from the middle and weave under and over alternately so that the finished work will have the appearance of a checker board. This effect can be accentuated by the use of two colors. The bottom of the basket should be seven inches each way. This leaves five and one half inches for the side height. Bend the side splints up, moistening them if necessary, and weave until the basket is complete. The top may be finished outside and inside with a narrow strip of splint which in turn is wound with splint binding. This basket is quite pretty in two or more colors.

For a splint wall pocket, take the same number and size of splints as for the basket. Lay them side by side as before. Weave a row or two exactly in the center, then dampen and bend the sides upward. Continue weaving and finish the top like that of the basket. You will now have a flat wall pocket. These articles may vary in size according to the use for which they are intended.

And now for the caning of chairs, an occupation which will chiefly appeal to boys, although some girls take to it quite readily. Cane comes in bundles like reed. It is not numbered but simply designated as coarse, fine, etc.

All cane close to the wood should be carefully cut away from the chair to be recaned. Clean out all the

holes. Start in the center. From the center hole in the lower row to the opposite one in the upper row stretch a piece of cane which has been previously soaked a short time. Fasten the cane in each hole with pegs, allowing a short length to hang below the seat. Continue working from center to right side, then from center to left side until a vertical row of cane is fastened from front to back on the seat. Turn the chair around and start in the center as before, keeping the cane loose. When this is done the seat should be full of tiny holes. Understand the cane has not been woven, simply crossed. Now begin the weaving process, under and over from corner to corner, then turn and weave from opposite corners. When finished, lay a flat piece of binding cane over the edge of the holes and fasten it in place by means of a narrow strip of cane threaded through every second hole and passed over the binding. An energetic boy who is not afraid to ask people if they have repair work of this sort to do will be sure to get one or two commissions to begin with. After this if the work is done well his services are more than likely to be in demand.

## CHAPTER IX

### MONEY MAKING NOVELTIES

GIRLS will be astonished when they come to make a list of the many unique household articles which will help to bring them an income. Hand-made novelties for birthday or holiday gifts are always in favor and thousands of busy women will gladly pay liberal prices to young people who can furnish a supply of such articles.

#### ROSE BEADS

Rose beads and chains are among the popular novelties which enable young people to earn money. Whether it can be called a fad or not the manufacture of rose bead chains has become almost universal, and in money-making possibilities it is much like reed basket work.

I know a number of young people who began making rose beads and chains last summer, and established a good business. They are excellent for filling in spare time and making it profitable. Nearly every woman has a strong liking for these novelties, which make suitable presents, and are tasteful articles of adornment. A common price is \$2 for a 15-inch

chain. Some people prefer to string the beads themselves, and in that case the beads sell for 5 cents apiece. These chains can be varied considerably by mixing colored beads.

Boys and girls who have a patch of ground either in city or country, or who know where to gather roses, can pick up considerable money in the way suggested. From almost any greenhouse owner, rose petals can be obtained for nothing, thus adding to the stock which is gathered from the garden and field.

Take fresh rose petals of all colors, but preferably dark ones, and grind them through a food chopper a number of times. Then set them away in a kettle for twenty-four hours. This pulp is then to be fried in vaseline a few moments. The vaseline seems to make the product darker and it keeps the mass soft and workable. It enables the pulp to be rolled into shiny balls.

Make these balls a little larger than what is desired for beads, because they shrink somewhat. They are to be strung on wires and allowed to harden for a few weeks before being made up into chains. It will be found that the money received is nearly all profit, the stock costing next to nothing. Vaseline is one of the cheapest of products and the expense of using it on the ground rose petals amounts to little when the value of the chain is considered. As these goods are in best demand for Christmas gifts a little canvassing should be done in the fall and early winter to secure customers.

## COVER FOR PINCUSHION

Practical pincushions are not always to be found in every girl's room. Here is the way to make one that is extremely pretty and dainty, and may be made to match other pretty things in her room, and at the same time it can be laundered when soiled, and be as fresh and pretty as ever. Take white linen, and cut in two oval pieces. These should measure about four and one-quarter by seven and one-quarter inches after the edges are embroidered in scallops. In the center of one piece, embroider whatever initial may be desired, with some little design, for the top of the cushion. Work eyelet holes about three-quarters of an inch apart all around both pieces, in which to run ribbon to fasten the pieces together. The cushion for the inside may be made of similarly shaped pieces of cotton, stuffed with wool.

## LAWN APRON

Something new in aprons is hard to find, but this pretty little work apron is dainty and useful, if not entirely new in design. It is made of white lawn or voile, which has a striped design of tiny pink roses or other flowers. It is made in two parts. The front section is shaped like a quarter-moon and forms the pockets. The top of this shaped piece should be finished with a very narrow hem, done by hand, and edged with a frill of narrow lace. The two sections of the apron are then sewed together on the wrong

side around the outside edge, and after turning right side out — featherstitched down the center of the front to form the two pockets. Finish the edges of the whole apron with the lace, and also the ends of the strings. Gather the apron into a belt, having it quite full, and place pink satin bows at each side. This is a very attractive little apron, and when finished should measure about twenty-four inches in depth, and twenty-eight inches in width. This size requires one and a quarter yards of thirty-six-inch material, and five yards of lace.

#### UNIQUE SEWING BOX

To make an odd little sewing box take eight pieces of cardboard, four of them covered with cretonne or silk, or any desired material, for the outside, and the remaining four covered with some pretty harmonizing material for a lining. The cardboard pieces should be triangular in shape, measuring seven inches on each side. Before the lining sections are sewed to the outside sections, the various little pockets and sewing conveniences should be made and attached to the lined sides. Make small Shirred pockets drawn up with elastic bands on two sides, and stretch a narrow band of elastic across the third side for the scissors and bodkin, etc., and on the bottom attach a pincushion. This little cushion is made of the same material as the lining, being a circle of silk gathered over some wool, and divided in sections by strong embroidery silk brought up through the center, and drawn down tightly

over the outside, and fastened each time. Attach ribbon hinges to the bottom piece and the side which opens, and two pieces of ribbon at the points which will be the top of the box, for fastening together when closed. Now oversew the lining sections to the outside sections, making a pyramid-shaped box leaving one side free except at the bottom, for opening.

#### TWINE BAG

A twine bag which is real Christmasy in design and color! It is made of light green linen, embroidered in a holly design with dark green and bright red, and bright red satin ribbon is used for the drawstring. A ball of red twine is designed to go inside, and the end of same to come out in a tiny hole left in the bottom of the bag. This pretty little bag is made of three pieces, all cut the same shape and size, measuring three and one-half inches by four and one-half inches. Allow half an inch at the top for a hem in which to run the drawstring.

These bags are very inexpensive, and are very acceptable little gifts.

#### WORKBASKET

Here is a workbasket that is a little different from the ordinary run of workbaskets, as it is made of velvet which lends a pretty softness that is very attractive. Any shade of velvet as desired, may be used for the outside covering, having the lining of the basket harmonize in soft silk or brocade. A pretty combination

is of golden brown velvet with yellow silk or brocade for lining. To make it take pieces of cardboard and cut with one side rounded, and the opposite side a trifle narrower, for the sides of the basket. For the bottom one piece of cardboard measuring three and one-quarter inches square is used. The side pieces should measure about four and one-half inches across the widest part at the top, three and one-quarter inches at the bottom, and be three and five-eighths inches from top to bottom. The velvet is sewed over cardboard, and the lining over corresponding pieces of cardboard, and before these two parts are oversewed together, attach two pockets of the silk on two lining sides. Use elastic in the shirring at the top edges, and sew two strips of yellow satin ribbon across a third side for bodkins or scissors. Attach a needle book made of the silk, to the fourth side. Sew ribbons on the side pieces to tie them together, and then place the lining sections on the velvet-covered ones, and oversew the edges together. The bottom is attached to the sides by hinges made of heavy silk floss.

#### A PRETTY WORKBAG

Workbags are always in demand, no matter how many a girl may have around her room, but substantial ones are not always to be had. Here is one that will be found very pretty as well as useful. Five sweet-grass mats are used, one for the bottom, and four for the sides. These mats come in all sizes, from four inches in diameter up to eight or ten inches.

The five-inch mats make a very convenient sized bag. The four side mats are oversewed to the bottom one where they touch, and they are tied together where they meet at the sides, with narrow ribbon. The bag that goes inside the mats should be made of a pretty soft silk or cloth that harmonizes with the soft green of the sweet grass, such as yellow, green, old rose or heliotrope, and, of course, the ribbon used for tying should be in harmony, as well. The silk bag should be gathered into a circular bottom somewhat smaller than the bottom mat. For the five-inch mats, the bag would require a piece of silk about ten by twenty inches, which allows for a heading and casing at the top.

#### ATTRACTIVE BOOK ENDS

Book ends are almost a necessity on the library table in the living room, if one expects to preserve any kind of order among the many books that are usually adorning a table around which a family gathers to read. There is one that can be made with but little cost, and at the same time be very attractive. It can be made of material to carry out any color scheme or design that may be desired to harmonize with the furnishings of the room, and can be made of crash stenciled or embroidered in the different shades of blue. For the foundation, have a tinsmith cut two pieces of tin, each measuring six and one-half inches by eight and a half inches. Bend up one end of each piece about three inches, making the upright part

measure six and one-half inches across, and five and one-half inches from top to bottom. Take pieces of crash which have been embroidered or stenciled, having them cut plenty large enough to cover both sides of the tins, and allowing plenty to turn in at the edges, which are oversewed together after inserting the tins.

#### POCKET FOR DUSTERS

Many steps may be saved by the busy housekeeper, if dustcloths are near at hand, but unless there is some place to keep these cloths where they will be out of sight, they are not likely to be very handy. When there is a closet in a room, one can hang a pocket for dusters, or sometimes even right out in the room, in some corner where it would not be very conspicuous, a pretty pocket would not be unsightly. To make a pocket, take a piece of cretonne or art ticking, or any other washable material that one may desire, cutting it about ten inches wide, and about twenty-three inches long, shaping one end to a point. Double the piece over and sew together with tape, so as to form a bag the shape of an envelope. Place a small, brass ring at the point for hanging. This makes a bag about ten by fourteen inches from point to bottom, at the back, with a front of nine by ten inches. For dusters, cheesecloth is preferable, and they are very pretty featherstitched around with mercerized cotton, if one has the time. This is very nice work to be done in the shade of the porch on summer days. Or if one does not care to put that much work on them, they look

very pretty simply hemmed by machine. One yard square makes a good-sized duster.

#### SKIRT HANGERS

A pretty and easily made article for which there is a demand is a skirt hanger. The plain hanger can be bought at any ten-cent store, in two lengths. Pad the wooden slats that spring together for holding the skirt, by binding them about with sheet wadding into which has been sprinkled a liberal supply of sachet powder; then cover them smoothly with ribbon of sufficient width to reach around the padded slat easily and overcast the edges together at the top. Cover the hook by winding closely with number five ribbon of the same shade as the wider, or any harmonizing color desired. Hide the wooden roll holding the wires with a full bow of the wider ribbon, allowing the loops to droop over and hide the wires where the slides work. The larger size requires three yards of wider ribbon — unless a more elaborate bow is desired — and one and one-half yards of the narrow. These hangers sell at \$1 to \$1.50, and there is a fair profit on them.

#### DRESS PROTECTORS

Dress protectors can be made of three yards of soft cretonne or silkaline. Fold material double and round the corners of folded end to fit a sloping coat hanger. Sew selvage edges and rounded corners together, respectively. Make a twelve inch opening at the top, and bind this slit with ribbon wide enough to

make the opening dust-proof, when the garment is in the protector. A draw string run through the binding will make the protector fit more closely to the handle of the coat or skirt hanger which is within. Put a hem in the bottom and ribbon ties to fasten the two pieces together.

#### NAPKIN CASES

From a sanitary standpoint, napkin cases are an absolute necessity in a boarding-house, and in a large family such conveniences would keep a very personal article clean and untouched save by the owner. Few households indulge in fresh napkins every meal, and for this reason, cases are much better than rings, for they protect from the usual dust of a room, prevent handling by servants, and contact with other napkins.

For making such an article, take one quarter yard of yard-wide material, a fifty-cent linen for instance. Cut this in two, making two pieces 9 by 18 inches. Hem one end, and measure from this end 7 inches. Turn this up for the pocket, and sew up the sides. Turn right side out and hem the edges of the flap neatly. Initials embroidered on the flap or on the back of the case would give the personal touch, making such a simple yet useful gift suitable for Christmas or birthday time.

One yard of this fifty-cent linen will make eight cases, which are easily worth fifteen cents apiece. Even at two for a quarter, the profit on eight would be considerable. You might try some boarding-house

keepers on such a proposition and if necessary use less expensive material, selling them then at ten cents apiece. This is an almost unknown article and the field for them is unlimited.

#### ADDRESS BOOKS

Small note-books which can be indexed easily, and covered with silk or cretonne make useful little novelties which a girl could sell in connection with her wares of other types.

#### BOOK COVER

A book cover that may always be fresh and clean is one made of crash, stenciled or embroidered in holly design in green and scarlet. This pretty cover makes a very appropriate Christmas gift. Of course books vary in sizes, but the standard book measures about five and a quarter inches by seven and three-quarters inches, and one and one-half inches thick. The crash should be cut long enough to turn under at both front edges of the cover, to form pockets about four inches deep. Finish the edges of the pockets with narrow hems, and also hem all raw edges. While the embroidery requires more labor, it is more serviceable than stenciling, as it can be laundered with better results.

#### CLOTHESLINE REEL FOR PROFIT

If you are willing to take pains in doing your work, you ought to find a ready sale for a kitchen clothesline reel, a description of which follows. Every house-

wife will welcome this convenience, which is simple and comparatively easy to make.

Take two pieces of board, each three and one-half inches square and one-half inch thick, and shape them according to the following directions. Divide three of the sides of each piece into halves and place dots at the points of division. Connect these dots with a half circle, accurately drawn with a compass. Cut along the curved lines.

Bore holes in the exact centers of these two pieces, large enough to allow a brass rod, about a quarter of an inch thick, to pass through freely. Now, nail these pieces, or sides, to a bottom piece, six inches long, five and one-half inches wide, and one-half inch thick.

Procure a brass rod, ten and one-half inches long and one-fourth of an inch thick. Run it through the two holes in the sides, in such a way that one end will extend one-half inch beyond the left side. Notch this projection and wind stout linen thread around the rod, so as to prevent the end from slipping back into the box. Use glue to hold the thread together.

Before this is done, however, you should shape the rod, forming a handle with which to reel up the line. Insert the extreme right end of the rod in a hollow piece of wood, one and one-half inches long, and prevent the wooden cylinder from coming off by again notching the rod and using the linen thread.

Secure a very light clothesline, about ten yards long. Slip on an iron ring and then attach the two ends of the line to the center of the rod.

Get a piece of tin, six inches long and of sufficient width to go around the sides. Cut a slot in the center of it one and one-half inches long and three-eighths of an inch wide. Run the rope through the slot and tack the tin to the sides.

Make two holes for screws in the upper inch projection of the bottom piece and two in the lower inch projection. These are to be used for screws to fasten the clothesline reel to the wall.

By painting the outside a rich dark green, the reel will look very attractive.

#### MUFF HANGER

A muff hanger is a home-made article that is simple enough to make. A thin board four inches in width and about two feet long can either be painted white or covered with ribbon or silk. Sachet might be added to make it more attractive. One and one-half yards ribbon about one inch wide is needed for the hanger. Loop this around the ends of the board fastening the right one if necessary, to make it firmer. Leave the left one loose so that the loop may be slipped off to run the muff onto the board. An expensive muff is well worth care, and the twenty-five cents that one may charge for this and still make a profit makes it a good investment.

#### TRAVELLING APRON

A travelling apron adds greatly to the convenience and pleasure of a trip and this one which I will describe

to you is very inexpensive. It is of blue Indian head, a piece fifteen inches wide and twenty-four inches long. Across the bottom of this, lay a piece of the same material fifteen inches wide and ten inches in depth. Stitch these together on the sides and across the bottom and stitch into pockets, making the center one-eighth inch wide. On either side above these three lower pockets stitch pockets about four inches wide and eight inches deep. In the center stitch on a piece of eiderdown or some other cottony material which will hold hair pins, safeties, etc., thus making a convenient place for all kinds of pins. Bind the edge with bias tape, also the pockets if desired. These pockets are all so deep that articles do not fall out, and the whole thing when filled with all the usual necessary travelling articles folds up into a roll about fifteen inches around. Indian head costs ten cents a yard and I think that two yards would make three such aprons. The bias tape is ten or twelve cents a package and two bolts would be plenty for the three aprons. This is such plain, straight sewing that it takes no time at all to make them and the cost is less than fifty cents for three.

#### A PRETTY APRON

Dainty aprons always make pretty and acceptable gifts for all girls. Here is a very pretty one that is simple to make. Take a piece of sheer white voile, twenty-eight inches long, and twenty-two inches wide. Slope to a point at one end, and narrow the other end

down to sixteen inches in width for the top of the apron. Sew a hem of pink voile all around the apron, using a piece four and one-half inches in width, which when doubled and sewed over the white edges, makes a hem about two inches wide. Shirr the apron at the waist line and at the top of the bib to the required width. Pink satin ribbon is used for the belt which fastens at one side with a rosette. A corresponding rosette is made of ribbon for the bib, placing it on the opposite side. Other delicate colors with white also make pretty aprons, using ribbon to match the hem.

#### CONVENIENCE FOR TRAVELLERS

If there is ever a time when a girl needs to have things convenient, it is when she is travelling, and some of the things she is pretty sure to need are her needle, thimble, thread and scissors. They will not be convenient if they are scattered, hit or miss, throughout her travelling bag, but the girl who has forethought will provide herself with a neat little sewing case to save herself a good deal of trouble. This one is very simple and easily made. Take bronze morocco or scraps of prettily colored levant such as is used to bind fine books, and which can be purchased at a book bindery. Cut pieces for the oblong sides of the case about seven-eighths of an inch by four inches. The rest of the case is made of one piece of leather three by ten and one-half inches. Line these two pieces of leather with pretty silk, and bind all around with No. 2 satin ribbon. At one end of the long strip, attach

a rather flat-tufted pincushion made of the silk, and on the other end, buttonholed flannel pieces may be sewed, to hold needles and pins. A narrow band of elastic for holding a bodkin can also be attached at this end. Oversew the oblong side strips, and the one long strip of leather together, forming a little case as originally planned. The end of the long piece will overlap, and ribbon should be attached on each end so it will tie conveniently. Scissors, thread, thimble, etc., will always be handy if put in a little case like this, when getting ready for a journey, and it is a gift that would be appreciated highly by any girl who does much travelling.

## CHAPTER X

### PHOTOGRAPHY GIVES GOOD RETURNS

EVERY family should have a camera! What better way is there to keep one's pleasures fresh in mind than to have pictures full of personal interest? Any one possessing a kodak works with keen enthusiasm, and as much fun is found in the developing and printing features as in the actual taking of pictures.

If a camera is used merely for pleasure, the owner finds subjects everywhere, but if a financial return is desired a little study of market requirements must be made. Newspapers and magazines run photographic pictures of various kinds and pay well for such as they accept. Snapshots of children in cunning poses will almost always win a few dollars for those sending them. Animal pictures come next in interest, for life and action represented on paper are the two most important features of picture making. Baby animals afford pictures which are much sought after. A group of kittens, fluffy little chicks, a wabbly calf and a screw-tailed little pig make quite a picture of the second generation of a stock farm. Shetland ponies are good subjects. A bird nest full of gaping bills will interest thousands. Any number of rustic scenes can

be supplied to those who are willing to pay for them. These nature scenes are useful in teaching, and there is also a steady demand for them in newspaper offices.

Railroad companies and real estate dealers use an endless number of farm and scenic views.

When young people are out in the woods or strolling through the country it is possible to obtain many beautiful views of natural scenes, birds and animals. All such pictures have a cash value. An expert can take a camera into the country once a week and obtain pictures that will yield a nice income. This field of enterprise is not a narrow one, but is universal. Sometimes men go through the farming districts taking photographs of buildings and herds of stock. These they sell to the farmers as well as to city publishers who wish to use the views. The owner of a nice horse or herd of cattle is sure to be a good customer for any boy or girl who can make up an artistic photograph. Groups of farm people on the lawn surrounding a cosy rural dwelling make excellent subjects for a photographer. Recollect, picture taking is not so very common among farmers and when the owner of a kodak takes a specially nice view of the dwelling, members of the family or some beauty spot on the place there is sure to be a sale of the photographs.

Photographs the size of a postal card make good lantern slides, for they are clear enough and may be colored. These add much to the enjoyment of a vacation, especially if one is visiting mountain scenery or rustic places. A young photographer can work up an

unlimited amount of business at almost any of the popular summer resorts.

To take instantaneous pictures the object should be in the broad open sunlight, but the camera should not. The sun should be behind the back or over the shoulder of the operator. Use the largest stop always in taking snap shots. Locate the image in the finder, for any object that does not show in the finder will not show in the picture. Hold the camera level and perfectly steady. Press the shutter lever to one side and turn a new film into place.

In time exposures, a support of some kind is best. Pull out the time slide on the left side of the camera front. Everything being in readiness, push the lever to open the shutter. After the proper time press the lever in the opposite direction to close the shutter, then turn a new film into position. There are certain rules for light and exposure which are stated clearly in the instruction guides.

Flashlights afford more fun than almost any other type of picture, and no evening party is complete without them. A package of flash sheets, a piece of cardboard, a pin and a match complete the list of essential extras, although a kodak flash sheet holder is a great convenience.

With flash sheets, no lamp is necessary. There is a minimum of smoke and they are far safer than any other self-burning flash medium, besides giving a softer light that is less trying to the eyes. Place the kodak on some firm support and prepare for a time

exposure. Pin a flash sheet by one corner to a piece of cardboard which has previously been fixed in a perpendicular position. If the cardboard is white it will act as a reflector and increase the strength of the flash.

The flash sheet should *always* be placed two feet behind and two or three feet to one side of the camera. If placed in front or on a line with the front of the camera, the flash would strike the lens and blur the picture. It should be placed at one side as well as behind, so as to throw a shadow and give a little relief in the lighting. The flash should be at the same height or a little higher than the camera. The support upon which the flash is to be made should not project far enough in front of it to cast a shadow in front of the camera. An extra piece of cardboard a foot square placed under the flash sheet will prevent any sparks from the flash doing damage. However, by using the kodak flash sheet holder, all these contingencies are taken care of.

Having the camera and the flash sheet both in position and all being in readiness, open the camera shutter, stand at arm's length and touch a match from behind through the opening in the center. There will be a bright flash which will impress the picture on the sensitive film. Then push the lever to close the shutter and roll a fresh film into place. If you are not using the kodak flash sheet holder place the match in a split stick at least two feet long. Never use more than one sheet at a time in a holder.

No dark room is required in changing the spools in

the camera. The operation can be performed in the open air, but to avoid all liability of fogging the edges of the film, it had best be performed in a subdued light. When the film has been exposed, give the key twenty-four extra turns. This covers the film with duplex paper again.

In the matter of developing, the daylight method is the simplest, and gives very good negatives. There is no necessity of working in the dark room or waiting until night to develop. It can be done in daylight at any time and place. And the daylight methods of developing give better results than the dark room way. A film may be developed in daylight by the Kodak Film Tank method. Detailed directions of developing will be found in the manual which accompanies the goods.

Velox prints may be successfully made, using daylight for exposure. Select a north window, if possible, as the light from this direction will be more uniform. *Owing to its sensitiveness the paper should be handled in subdued light, otherwise it will be liable to fog.* Proper precautions should be taken to pull down the window shades and darken the room sufficiently during manipulation. If the light is too strong for printing it should be subdued or diffused by the use of several thicknesses of white tissue paper. Owing to the varying intensity of daylight uniform results are not as certain as when using artificial light. A kerosene lamp fitted with a round burner may be used, but owing to the decidedly yellow light this affords, a considerably

longer exposure will be necessary than when using a Mazda light. In regard to temperature 70° F. is the right developer heat, and wash water and fixing bath should be 50° F. Ten feet from an ordinary gas flame is a safe distance to work with Velox paper. Follow instructions carefully in this work. I would suggest before making the first exposure the cutting of a piece of Velox paper into strips about an inch wide and placing one of them over an important part of the negative, make the exposure, using your best judgment as to the distance from the light and the time of printing. Develop it, and if not satisfactory try another strip, varying the time as indicated by the first result. When the desired effect is secured, you can make any number of prints from the same negative, and if the time of exposure, distance from light and time of developing are identical, all the prints should be equally good. By comparing your other negatives with the one you have tested, you will be able to make a fairly accurate estimate of the exposure required by any negative.

After taking the exposed piece of paper from the printing frame, in a safe place previously selected, it is ready for development. The dry print should be immersed face up in the developer and quickly and evenly covered with the solution. Regular Velox should be developed not to exceed twenty seconds; Special Velox about twice as long. No exact time can be given, as the strength of the developer used would make a difference in the time.

As soon as the image has reached the desired depth remove from the developer to the second tray and rinse for a moment, turning the print several times, then place it in the acid fixing bath, keeping the print moving for a few seconds the same as was done when rinsing, so as to give even and thorough fixing, preventing stains and other troubles. Leave the print in this solution until thoroughly fixed. This will take about fifteen minutes. When fixed remove from the fixing bath and wash thoroughly for a short time in running water, then dry. After drying, prints may be trimmed and mounted. Do the work systematically and without messing or fussing.

After you have taken a photograph, developed it, made a print from it, toned, fixed and washed this print, what do you do then? Lose all interest in it? Leave it on the table, to be swept off on to the floor, and so into the waste-basket? Or do you stuff it into the handiest drawer or cupboard? The neatest way to keep photographs is to paste them in an album, a good big one preferably, with good, strong leaves of a color which will harmonize with your prints—I should say brown or gray would be most useful. It is a good plan to give every print a number, to write it underneath the photograph when you have pasted it in, and to give the negative the print was made from the same number; then to put the negatives away in boxes with the numbers written outside. In this way, if you ever want more prints from any special negative, it is quite easy to find it without any waste of

time, and without the worry of wondering where you put it.

If you prefer to have your photographs each on a separate mount, and wish them to look well, choose as plain a mount as you can possibly get, and remember that any ornament takes away from the appearance of the print rather than adds to it. Above all things, cut the print straight before it is mounted. The best way to cut it, if you do not possess a cutting machine, is to place the print on a piece of glass or something equally hard, and to use a very tough ruler and a very sharp knife. Do not use stale paste for mounting; it is sure to make the prints fade.

A successful professional was asked what kind of paste he used for mounting his large prints. He replied: "I never use anything but common starch paste for any of them." I have tried many different formulas and makes and find starch paste as good as any water paste, safe, cheap and convenient. It should be made fresh each day it is to be used. Take one heaping teaspoonful of good laundry starch; add two teaspoonfuls cold water, and stir until entirely free from lumps; then add, while stirring, enough boiling water (be sure it is boiling), to make half a teacupful, or about one-fourth of a pint. The paste is ready to use as soon as cool. It can be thinned with warm water if necessary.

For use on thin cards, book leaves, calendars or any place where the drawing, curling or cockling of

a water paste would be an objection, as well as for glossy prints which cannot be burnished after mounting, use the following gelatin mountant:

Plain cooking gelatin .....	1 ounce
Alcohol, 95 per cent .....	10 ounces
Glycerine .....	from $\frac{1}{2}$ to 1 ounce

Soak the gelatin in water till quite soft, say half an hour or more; drain off all the water possible, and put in a wide-mouthing bottle with the alcohol and glycerine. Heat gently in a water bath until gelatin is entirely dissolved. If gelatin is quite soft, one-half ounce of glycerine will be sufficient, and if hard the full ounce may be used. If well cooked, this mountant will keep indefinitely, and has only to be warmed in a pan of hot water to be ready for use. I have used it three years old, and found it worked as well as when first made.

Dry mounting photographs is a much cleaner and better method than using paste. The machinery required for dry-mounting is far too expensive for young amateurs, but very good results may be obtained by using an ordinary hot flat-iron. The chief advantage of dry-mounting is that the mounted prints do not curl up or cockle, even when they are mounted on quite thin paper.

First of all, buy the adhesive tissue for mounting at any photographic dealer's; don't buy a great amount, but just a little to experiment with. Then lay your

photograph, which must be dry, face downward on a sheet of brown paper or tin, or any substance to which it will not stick. Next place a piece of the adhesive tissue — the same size as the photograph — on the back of the photograph, and touch it with one corner of a hot flat-iron, hot enough to iron with, so that the tissue sticks to the back of the photograph. Then place the photograph face upward again, and with a sharp pen-knife and hand ruler, or a pair of sharp scissors, trim the edges of the tissue and the photograph. Get the edges straight. If you use scissors, you will have to draw a pencil line where the edge comes; if you use a knife, it is easier to get the tissue exactly the same size as the photograph.

Have your mount ready, and take the photograph and tissue, which are both stuck together, and lay them on the mount; it is well to mark with a pencil on the mount where the photograph should come, then you will be sure to get it straight. Now take the hot iron in one hand, and, holding the photograph firm with the thumb of the other hand, lift up a corner of the photograph with the fingers, and fix the tissue to the mount with the hot iron, just a touch or two to keep it in its place. The photograph now being fixed in places to the mount, so that it will not move, cover the whole with a sheet of brown paper and pass the hot iron over it till, the tissue melting, the photograph is firmly fastened all over on the mount.

You can make the adhesive tissue paper, if you wish, by following these simple directions; make the coating

for the tissue as follows: Gum sandarac, three parts; gum copal, one part; shellac, one part; resin, one part; alcohol, three parts; spirits of turpentine, three parts. Apply this to the tissue paper with a brush, and let it dry.

## CHAPTER XI

### OPPORTUNITIES IN THE COUNTRY

IN such matters as raising animals or garden products, canning fruits and vegetables and cultivating flowers, boys and girls in the country have an advantage over young people living in town. In other lines of activity, however, those dwelling in cities have special opportunities.

One boy tells what he did with a potato crop on his father's farm, which is in Massachusetts:

“Last May my father gave me one-eighth of an acre of good potato land. He said I could plant potatoes there but I would have to care for them and pay for all the work which I could not do. I planted two bushels, for which I paid \$1.50. This, with the work which I could not do, amounted to \$11.25. When I dug them, I had  $47\frac{1}{2}$  bushels, of which 42 were large enough to sell. These brought me 90 cents a bushel. I took a display of the best to our local fair and made enough on prizes to pay for carting the potatoes to market. My net profit was \$26.55, a great deal of experience and considerable gain in knowledge of business methods.”

Another youth gives his experience in this way:

“I have always liked poultry, so I thought I would try by that means to make a little spending money. I bought a setting of Rhode Island Red eggs and put them under a hen. Eleven hatched, of which six were pullets. I sold the roosters for broilers and raised the pullets.

“During the summer my father built a little hen-house. In this I put my six pullets. For a year and a half I kept a record and made a neat profit. During the year 1914 ten White Plymouth Rock hens averaged \$2.19 apiece. I think if a boy wants a little spending money keeping poultry is a good way, as little capital is required to start.”

A Connecticut boy began making maple syrup on his own account when he was only ten years old. He tells of his experience in this way:

“When I was about 10 years old I made a little furnace in the pasture, only large enough so an ordinary dripping pan would cover it. I tapped five or six maple trees and made a little syrup, which I sold. The next year I bought a sap pan and a number of buckets. That year I made about nine gallons, which I sold at \$1 a gallon. I continued this way for a few years. This year I bought a rocker furnace and an evaporator and I am going to tap all the hard maple trees on the place.”

Miss Anna Barrett of Larimore, N. D., produced 3,811 pounds of pork from a litter of fourteen Durocs in 209 days. She sold it for 6½ cents per pound, which brought her \$247.71, while the value of the

feed was \$91.49, which left a return of \$156.22 above the cost of the feed. The average daily gain above the cost of the feed was 75 cents—a pretty good return for caring for a litter of pigs. These pigs were born April 27. From the 9th of May until the 10th of October they had the run of a pasture. In addition, they were fed 21 bushels of corn, 14 of barley, 20 of oats, 2 1-3 tons of screenings, 114 pounds of bran and 1,400 pounds of milk. From this amount of feed the fourteen pigs, with an average weight of 272 pounds, were developed, and the cost per pound was 2 2-5 cents.

This result was attained in a contest with other young people, all under 18 years of age. The prize won by Miss Barrett was \$100, besides the profit from the pork. A boy won the second prize and a girl the third.

Country girls usually make a success with poultry, calves, pigs, sheep and horses when they have a chance to raise them, and it is a poor kind of a father who will not give an ambitious boy or girl a chance. A partnership is the best method of getting started in any such money-making enterprise.

Nearly all young people in the country have a chance to make cottage cheese, a product which is in good demand at fair prices. Town families like to buy cottage cheese in pound packages from a neat farm girl or woman. A nice way of putting up this product is to use the ordinary paper ice-cream pail, holding

either one or two pounds, as desired. The package should be wrapped in paraffin paper before being placed in the paper pail. Customers readily pay 15 cents a pound for an article of nice quality.

Any intelligent boy or girl can make cottage cheese and work up a good trade with it. Skimmed milk is to be set aside a day or two until thick. Then place the pan or kettle on the back of the stove for gradual heating until the whey and curd separate. Drain through an ordinary cloth without squeezing. When dry place in a dish and mix a cup of cream with five to eight pounds of curd. This makes it rich and palatable.

Among the school children in the rural districts of Cook county, Illinois, there is a good deal of friendly rivalry to see who can produce the best crops of vegetables and corn on little tracts of land which they rent from their parents. In most cases the children use less than an acre. They are showing keen intelligence in growing a variety of garden products and their earnings have made people sit up and take notice. It has been a common thing in their experience to raise vegetables worth at the rate of \$1,000 an acre. A very small patch is required to clear \$100, and besides this profit there is an unlimited amount of pleasure, healthful recreation and valuable experience in conducting these little farming projects.

A Maine boy says: "I know nearly all boys trap but perhaps there are some who have not tried this

scheme of money-making. One favorable thing about trapping is that it does not interfere with your duties; you can go to school and trap at the same time.

“ My second way of making money is by gathering golden seal, or yellow root, as it is more commonly called. It is quite well known in country districts and no doubt most boys are familiar with the yellow root which grows at the edge of fields where there are bushes and in the woods, for it requires shade. Any-one who has ever tasted it will remember its bitter taste. It is much in demand by druggists at quite high prices. A very short time ago it was selling at from \$4.50 to \$5 a pound. It may be higher now. So you see it is worth gathering.

“ Another article which can be gathered to advantage is a kind of moss growing in swampy and wet places, which is used by florists for packing flowers in. The evergreen or tree fern, which florists use to mix with the cut flowers, is also a salable article.

“ Perhaps the best thing I know of to earn spending money around Christmas time is cutting Christmas trees to sell. It is best to have three sizes so as to suit the needs and purposes of different people. You can arrange the prices to suit the circumstances.”

Another Yankee boy writes: “ Last year I earned pocket money by catching minnows to sell. The last of September I made two wooden boxes, screened at both ends and placed them in the brook in such a way that water continually passed through them slowly. A rush of water would kill minnows. Then with a

net I caught about 300 minnows, and put them in the boxes. These I fed on meal and bread crumbs and began to sell as soon as ice was right for fishing. They readily commanded a cent apiece and although some died, I sold enough to net me \$28. This was clear profit."

A Kentucky boy takes advantage of the nuts growing on and near his father's farm. He gathered 50 quarts of chestnuts, selling them at 10 cents a quart. This gave him quite a little spending money for Christmas, and as he had really earned it, he was all the happier.

A boy in the East has three ways of earning money. He exhibits his choicest garden produce at fairs whenever he has an opportunity. He gathers scraps of iron along the railroad, and \$25 was earned in this manner by him in one year. His third "side line" is to collect rare coins and sell them. He watches the coin catalogue, and finds this pastime of collecting coins very remunerative and interesting.

Another country boy tells of his experience in this way:

"My father owns a farm of twenty-four acres. The soil is very fertile and well adapted to vegetables. This is the way that I have earned spending money for myself: First, I raised tomatoes, cabbage and watermelon plants for sale. I sold the first two varieties for  $\frac{1}{2}$  cent apiece and the watermelons for 10 cents apiece, making several dollars that way. Some of the finest plants I set out, and by taking great

care of them was able to raise some prize-winning vegetables, which I took to the county fair. Later I sent them to the state fair, where I received first prize again. The work was easy and I enjoyed it."

## CHAPTER XII

### GIVING ATTENTION TO AGRICULTURE

A boy or girl who is brought face to face with the need of money earning should take a little time to consider methods. The number of legitimate ways of gaining profitable employment is astonishing. Those who have a taste for any branch of agriculture should study the subject, and learn all they can about gardening and fruit growing, handling domestic animals, keeping poultry and raising grain. Much work can be done along these lines wherever there is a garden, but those who have no plot of ground in town may find it feasible to go a few miles into the country, along a car line, and engage to do light farm work, or an acre or two of land may be rented for experiments in gardening.

Crops of vegetables can be kept growing all summer, or at least until vacation ends, and while a plot of ground may be secured for a few dollars the earning capacity runs up to quite a large sum. A very small patch devoted to lettuce, radishes, peas, beets, onions, tomatoes, sweet corn, celery, etc., can be made to pay well. Then it is possible to find employment which will yield both experience and wages. Strong

lads are always needed through haying and harvest time, when pay is the highest among farmers. If they have a taste for driving horses and feeding stock they are almost sure to find work.

Girls can do gardening, pick fruit, assist in canning and do many other things which should be both pleasant and profitable. It is best for them to go home nights unless they are well acquainted with the families where they are employed and can be properly lodged and boarded. Circumstances are different in all cases, and it would be foolish for children to make arrangements for work unless they know pretty well what they are doing and have the consent and advice of parents or other friends.

Nearly every family has to hire a little gardening done, and boys and girls can make themselves useful and earn considerable holiday money by doing odd jobs in this line. Wild flowers are always in demand, and various kinds which may be gathered in the country, within reasonable walking distance, or along an electric line, will go a long way in the money making scheme. I notice hundreds of children with bouquets of wild flowers through the spring and summer, and they can sell them if they care to do so. One kind of work that pays well is the collection of swamp earth, or the rich soil known as forest mold, which can be secured in timber lots. There is a great demand in villages and cities for this black earth, and 25 cents a bushel is a fair price for it. A little canvassing will reveal many customers.

In sections where fishing is good boys can earn a lot of money by supplying poles, hooks and bait, as well as by acting as guides. At summer resorts as well as near large towns boys and girls have a good chance to earn money by rendering service of this kind to strangers and boarders. I have known young people living near summer resorts to gain a regular cash income by selling buttermilk, flowers and fruits. There are many such little ideas that can be turned to profit. In the berry season any smart boy or girl ought to be able to earn a dollar a day by picking and selling fruit.

The story is told of a number of young girls who cut straws into suitable lengths for kindergartens and soda water fountains. This is an easy task if you have permission to go to a strawstack. For kindergartens straws are needed in different colors, and Easter egg dyes are suitable for giving them the tints needed. There is a wide demand for this product and the work will give an income through most of the year.

Most persons desire flower boxes for porch and window gardens, and if a boy can make them neatly or secure them from stores in town he will find plenty of patronage at a good profit. In supplying these boxes all sizes and kinds will work in, and it is quite possible for a bright boy to construct suitable boxes, rustic or plain, for customers who want something odd and tasty, made in a special way for a particular purpose. Any number of town people would be glad to buy ferns and such things in neat boxes filled with

soil from the woods. In many cases where boys sell boxes for this purpose they can secure jobs of filling them with soil and helping about the selection of plants.

In the berry-picking season all energetic young people should be able to earn considerable money. It is a settled fact that the demand for berries is increasing rather than decreasing and prices are on a high level. If children can not do more than gather enough berries for family use they are doing something useful and having a good time besides.

Boys and girls who are familiar with the country districts should make it a point to become acquainted with as many farmers as possible. Friendships of this kind will bring many a paying job to the young people, in the line of gardening and fruit-picking. In addition to doing such work as this in the vacation season they will be able to strike a bargain with some of their farmer friends for the use of a plot of ground the following season.

Young people who have a chance to form partnerships including two or three persons can easily work as much as five acres, which ought to produce several hundred dollars' worth of vegetables. The best plan is to secure the plot of ground for about three years. This will enable the young tenants to raise some small fruits as well as a full line of garden truck. The whole business will be much easier the second and third years than during the first season.

It is a splendid thing for young people to become

familiar with farm work. They can earn a little money through the vacation period and at the same time pick up a great deal of useful knowledge about handling poultry, live stock, fruit, vegetables, etc. There is no telling how many of such young persons will choose farming for their life vocation. It is safe to say that some of them will do so. In this event the knowledge they acquire during their school days will prove almost invaluable. To begin with, they know whether they like farming or not. It is safe to assume that intelligent boys and girls can become money-makers in the country by using their hands as well as their minds.

The leasing of a plot of ground for from two to five years enables young people to ascertain which are the most profitable crops. Some of the surest vegetables can not be produced the first season. These include asparagus and rhubarb. These are two of the best paying products and they can easily be handled by amateurs. This is also true of various kinds of flowers.

At every odd spell during the summer work can be found on neighboring farms. Sometimes it will be for a day, and then again for a week or more. The work can be so managed on the plot which the young people are working that they can be away for an occasional spell to earn a little money and gain experience.

## CHAPTER XIII

### COLLECTING AND GROWING FLOWERS

YOUNG people in almost any locality will find pleasure and profit in the collection and growing of flowers. The demand for flowers is universal and continual, so that a paying business is readily established. Those who have access to woods and farms get many beautiful blossoms for the picking.

Quite a number of beautiful and delicate flowers bloom in early spring. Most of these blossoms can not bear the strong sunlight and therefore we find them nestled in shady dells and alongside brooks.

Almost the first to appear is the hepatica, or liverleaf. This is known by still another name, liverwort, and is found in the northern states just about the time the last snows are melting and the breath of spring is in the air. The flowers are generally blue, but sometimes one will find blossoms that are almost white.

Another springtime beauty is the claytonia, in fact, it is called the spring beauty. This, too, blooms early and has a slender stem bearing grass-like leaves. The blossom is a cluster of tiny rose-colored cups veined with pink. It fades rapidly, so is not good in bouquets. It is kin to the portulaca.

Along the bank of little brooks threading their way into the woods, a number of pretty blossoms can be found. There is the heart-shaped, flesh-colored flowers of the squirrel corn, so named from the yellow kernel-like roots of the plant rather than from the shape and color of the flowers.

The Dutchman's breeches, sometimes called white-heart, is a pretty heart-shaped blossom, white in color and found in profusion. Farther on one comes across the dainty, fragrant trailing arbutus. The aroma is sensed long before the plant is within reach.

Somewhat later in the season the royal trillium appears. There are several varieties, deep purple, white with red or pink stripes and a pure white. The last named is the tardiest in blooming, but is considered most beautiful. This plant will be found away from the water, as it thrives best on drier soil. While not quite practical for bouquets, it is beautiful to look upon in a bed of moist green moss.

The bloodroot, a pure white flower, which emanates from a root stock as repulsive as the blossom is pretty, is another welcome bloom.

The violet family is abroad in the land from earliest spring until summer is with us. This bloom always makes up into an acceptable bouquet. There is the bird's-foot, the common blue violet, the round-leaved, lance-leaved, and the yellow and white violets. The last two mentioned seem almost too fragile to withstand the early frosty breezes. However, they appear with the rest. Then there is a violet tinged with

purple known as the Canada violet. This blossom is found close to the northern boundary and occasionally a little farther south.

Bluets, or innocents, are somewhat like the violet, although no kin. They grow abundantly in pasture lands and grassy plots. A field carpeted with these tender little flowers is indeed a pretty sight.

Ferns can be sold in pots at figures which will bring in a tidy sum. Many housekeepers would willingly pay a boy or girl a few dollars to have such flowers as wild roses, trilliums, lady's-slippers, violets, etc., transplanted from the woods to their gardens. A collector may be called on for these, and many more that are easily found in the early part of the season. A few favorites that can be picked or transplanted in May are hepatica, bloodroot, anemone, marigold, crane's-bill, orchis spectabilis, buttercup, blue flag and spider lily. I would advise the boys and girls who are going into this line of business to rent a patch of ground unless they have gardens at home. In any country district where flowers are numerous, a patch of land can be had for a few dollars each season. It is quite likely that the amount can be paid for in work or traded out in some way. In such cases a bit of ground should be selected near a farmhouse, and there must be a friendly working relationship with the owner. In this way the crop will be safe from intruders.

Any young person, working singly or in partnership, can do wonders with an acre of land or less. It is possible to sell 2,000 roots of ovalis from a square

rod of garden space. Many other plants are almost equally prolific and easy to grow. There is a big demand for oxalis roots. These and such hardy flowers as daisies, asters, sweetpeas and tiger lilies can be handled by amateurs and made to pay nicely while experience is being gained for the more delicate kinds.

These opportunities are for boys and girls in the country as well as those living in town. In thousands of cases the sons and daughters of farmers can have ground and facilities of cultivation without any expense. Nearly all parents are glad to encourage their children to establish a little business for themselves and build up a bank account, so long as it does not take too much time from school or regular farm duties.

I am sure boys and girls living in the country do not fully realize how much the common flowers which they term weeds are appreciated by town people. Housekeepers who have no time to gather these blossoms gladly purchase them when they are brought to their doors, especially if they can thereby encourage some bright boy or girl to branch out in an independent way. Let it be known that you will furnish wild flowers or plants in their season at reasonable rates and you will have about all the business you can manage.

The best way is to make regular deliveries, once or twice a week, but in addition to this many persons will give orders for extra supplies at times when they are giving parties or entertaining company. Always be sure that the flowers are in the best condition when delivered. Cutting and placing the stems in water in

a cool place for several hours before delivery will fill the tissues with water and thus prevent them from wilting. Then wrap in large sheets of paper to protect from air and sun, or pack in pasteboard boxes. Mailing by parcel post is feasible for such a business.

A boy in a rural town noticed that it was hard to get cut flowers. He thought he could raise them for the market, and his father gave him the necessary ground. He planted bulbs for tulips and started to grow dahomis, sweet williams, roses and phlox. In each case he spent a few cents more to get the rare variety. In another bed he had gladiolas, pansies, cosmos, geraniums, sweet peas, asters and larkspurs. He spent much of his time studying how to care for his plants and found out which ones needed the most cultivation, water, etc. When flowers began to bloom he made a neat sign, "Cut Flowers for Sale," and placed it on the side lawn. He then looked for customers and arranged with a dozen families for a bouquet every Saturday night for the Sunday table at 10 cents each. This made a regular income of over \$1 a week. He sold his rarest flowers to transient customers at high prices. When the summer was over he had \$47 in the bank and many plants and bulbs for the next year.

There is one common flower that can be made profitable all summer on a very small patch of ground. If young folks can get a patch in a garden, they can raise an almost unlimited number of poppies, which require little labor and bring some money. Poppies

are so hardy and prolific that the rules of cultivation are the simplest. Scatter 5 cents' worth of seed in any ordinary soil and a crop is sure. They will bloom by hundreds most of the summer. For amateurs who are without the best facilities for flower growing, I can recommend the poppy as a good money-maker.

## CHAPTER XIV

### METHODS OF CULTIVATING FLOWERS

YOUNG people who have money making in view need not hesitate to try experiments in the cultivation of flowers. If they can command capital enough to erect a greenhouse costing \$800 to \$1,200 with a heating plant, they will find this a paying investment, as it enables the owner to grow flowers and vegetables in winter as well as summer. Even in the open garden, however, floriculture is a good business.

Some of the flowers which give particularly good results, if started in hotbeds or cold frames, are: Ageratum, alyssum, aster, calendula or pot marigold, calliopsis, campanula, castor bean, chrysanthemum, coxcomb, cosmos, petunia, sweet william, Scotch pink, scarlet sage and verbena. Certain other flowers die or fail to thrive if they are transplanted. These therefore, should be sown only in the open ground. Varieties which are best to sow in a permanent location are: California poppy, candytuft, corn flower, forget-me-not, lobelia, phlox, sunflower and sweet peas.

Asters, chrysanthemums, gladioli and sweet peas surpass nearly all other flowers for open garden cultivation, being hardy and prolific. Others may be chosen,

but these are the leaders. With a greenhouse, roses and carnations are highly profitable.

Every girl wishes to know how to raise geraniums for winter blooming. The geranium is ever popular, and a room decorated with this and sweet alyssum is pleasing to the eye after the frosts of fall and winter have spoiled the garden.

In July take slips away from the old plants, care being exercised to get only the topmost ones. Run a sharp instrument through the bottoms of tomato cans, making several incisions; place two or three large pebbles in the bottom of each can and fill with moderately rich earth, then plant the cuttings.

Place in a very shady place and cover with newspapers for several days to protect the cuttings from extreme heat; remove the papers and turn occasionally until the stalks have assumed an upright growth, nipping in all buds until the plants are a good size. Then keep them always in the same position, taking care in this, and beautiful, fan-shaped plants that will blossom all winter will reward you.

Water regularly with tepid water — this is essential to good growth; use all the water the plants will absorb; this seems a small thing, but it will repay you well.

To have geraniums in blossom all the year, take slips from the bottom of plants in spring, March or April, and continuing so you will have plants that will please you better than if your old ones were set away. Keep them in rooms that are never chilly, taking the plants

from the windows if necessary. Do not use cans that are too large, as limiting the roots induces blooming.

If you have east or south windows in your kitchen try red geraniums in them through the winter; the every-day duties are lightened much by the brightness of the scarlet blossoms.

In order successfully to grow plants in the house, it is desirable to give them as nearly as possible the same conditions as those under which they grew in their native haunts. The calla, a native of the Nile valley, stands naturally with its roots in the mud under a tropical sun. Therefore, it is essential that it be given light, heat and water in abundance, especially water. Never should the ground be permitted to become even comparatively dry; for in one day when the buds are forming they may become blighted. The result will be—no flowers until the next pair of buds. Make it a rule to keep the ground saturated so there will always be some water in the saucer. The blossoms can be forced by giving hot water in a pan in which the jar is set, but it is best at the same time to water from the top with warm, not hot water.

Sweet peas should be in the ground as soon as the soil is fit to work. Careful preparation of the land is important. A trench should be dug four inches deep. In the bottom of this the sweet peas should be planted about two inches apart. When they are to be grown over chicken wire or brush stuck in the ground it is customary to sow them in two parallel rows, six or

eight inches apart. In this way on the same amount of trellis double the number of plants can be grown. Sweet peas thrive best in a cool, moist place. Because of this it is best to sow early in the spring.

Columbines, particularly the larger varieties, are one of the most elegant and graceful of hardy garden flowers. Their blooms are produced in late spring and early summer and are borne on stems two feet or more above the beautifully divided fern-like foliage. The exquisitely spurred flowers are produced in abundance. Seed may be sown from early spring to July in shallow boxes.

The small plants may be transferred into two-inch pots or into flats, spacing them two inches apart, and may be planted in their permanent quarters as soon as large enough to handle conveniently, or they may be allowed to complete their season's growth in a seed bed and transplanted to the border the following fall or spring, placing the plants fifteen to eighteen inches apart. Persons who wish to give a little attention to the appearance of their lawn or garden can depend on this flower for fine appearance and permanency. They work into any scheme of floriculture.

Chinese peonies are desirable on account of their large size, fine colors, and profuse blooming. They are perfectly hardy and will succeed on any ground unless so wet that the water will lie on the surface in the winter and spring. They may be planted either in the spring or fall. There is considerable money to be made in handling these hardy and beautiful flowers.

A large family trade can be built up with them. A limited demand exists among dealers. They are chiefly recommended for ornament in a large garden or lawn.

People who have a natural taste for raising flowers work at them to some extent all the year round. It should be kept in mind that winter preparations and care can not be neglected if good results are to be obtained, whether we are in the business for profit or merely for pleasure.

Not only are tulips and other bulbous plants attractive around the lawn in early spring, but they are also most satisfactory for indoor culture during the winter. They should be used in separate pots rather than in window boxes. Holland bulbs, such as the narcissus, tulip and hyacinth, are practically the only plants that will flower satisfactorily in the house with ordinary care. About the only plant giving similar satisfaction is the begonia.

It is essential for growing bulbs that they shall become thoroughly rooted before the tops are permitted to grow. This is done by planting the bulbs in soil either in pots or what florists know as "pans," which are shallow porcelain pots, or in boxes. These bulbs are then put in a cool place in the dark for a period of six or eight weeks, or even longer if desired. They should be left there until the roots are well started. The bulbs should then be brought into a slightly warmer place, with some light, for three or four days, and then gradually brought into greater

warmth and full light. During all the period of growth the ground should be kept moist without being water-soaked.

Occasionally the roots should be examined to see whether or not the plant requires repotting. This is done by holding the hands over the top of the pot, inverting plant and all, tapping the edge of the pot so as to loosen it, then lifting the pot off. This can not be done unless the soil is moderately moist. If the ball of earth is completely covered with roots the plant should be put in a slightly larger pot.

## CHAPTER XV

### PROFITS FROM MEDICINAL PLANTS

A SURE method of gaining a profit every season is by the collection and sale of plants which have medicinal values. In a number of cases that might be cited people get a living income from this kind of work. There is a large and steady trade in this country for roots and herbs and profitable prices are always to be obtained. For boys and girls who merely gather such products in the woods or fields there may be considerable profit without any investment.

Young people can easily learn all that they need to know on the subject of plant collection, and they may be surprised to see how much money they can obtain from a small outlay of time and labor. The following drug plants are found growing wild or may be cultivated in America:

Althea	Conium
Anise	Coriander
Belladonna	Dandelion
Burdock	Digitalis
Calamus	Elecampane
Caraway	Fennel

Henbane	Sage
Horehound	Thyme
Marjoram	Valerian

Some medicinal plants may be grown as easily as ordinary garden crops and many of them grow without any attention whatever, so that they may be gathered by the roadside or in odd places on almost any large farm. No special knowledge beyond the capacity of the ordinary person is required. The methods of harvesting and curing are soon learned.

Linden or basswood flowers are collected in May or June and carefully dried in the shade. A tea made from the flowers is used for headache, indigestion or colds. In some European countries linden tea is regarded as very soothing to the nerves. The dried flowers are quoted at 35 cents a pound.

Seeds of the dangerous and deadly poison hemlock are, while green but fully grown, carefully dried in a dark, well-ventilated place, and then stored in tight cans or boxes so that light and air are excluded. This seed brings eight to nine cents a pound. It has medicinal value, but the gatherer should always remember that it is a deadly poison.

Jimson weed is another poisonous plant whose fruit and leaves are used in medicine. The seed capsules are cut when mature but still green and dried until they open. The seed is then shaken out, and spread to dry thoroughly. The seed is worth six to seven cents a pound.

Mullein flowers are collected when fully open, but not ready to drop, and carefully dried. They are listed at from 70 to 80 cents a pound. Elder flowers are dried quickly when fully opened, so that they are yellowish in color, not brownish or black; they are used as a home-remedy, and also officially, selling for 18 to 20 cents a pound.

Ginseng and golden seal are being extensively cultivated in some localities and pay well. Golden seal is a very attractive proposition, in view of the fact that a crop of it can be harvested in three years after being set, whereas it takes from four to six to grow a crop of ginseng. Growers of golden seal have secured yields of two pounds of dry roots to the square yard. This would be at the rate of \$9.50 per square yard at the present price of \$4.75 per pound.

The practice of shipping golden seal seed in the red berries is a poor one and should be abandoned. The slightest fermentation of these red berries will kill every seed. In fact, the berries after being picked should not be allowed to stand over a few hours before the seed is rubbed out or the seed is liable to be killed. The number of seed in a quart of berries will range from 5,000 to 10,000 according to the age of the plants and the condition of the weather — whether it is dry or wet. Like the raspberry in a dry spell, the berries seem all seeds, because the pulp does not grow for lack of moisture. Immediately after picking seal berries crush them and wash out all the pulp

and juices possible and stratify seed in four or five times their bulk of sifted loam.

Berries of the common juniper sell for two to two and one-half cents a pound; they are collected when ripe, usually about October. They are used for distillation of oil, for flavoring purposes, and medicinally as a stimulant and diuretic.

The berries of the saw palmetto are used officially in medicine and sell for 25 to 27 cents a pound. The fruit ripens from October to December, but collection begins before it is fully ripe, in August, and extends into January.

Wormseed is a common and exasperating weed, but its dry seed brings from eight to ten cents a pound, while oil of wormseed is \$2.25 to \$2.50 a pound. Wormseed may be cultivated to a considerable extent, for the distillation of this oil.

The berries of the familiar pokeweed are gathered when fully mature, and carefully dried in the shade. They are poisonous, but of value in medicine, and sell for three to four cents a pound. Poke-root is also used medicinally.

Black mustard and White mustard, are both troublesome weeds, and are both used in medicine. The fruiting tops are gathered before fully ripe, and placed on a clean shelf or floor to dry out and open the pods, when the seed is easily shaken out. It is quoted at two to four cents a pound.

Prickly ash berries when dried command 19 cents

a pound. They are pungent and aromatic, and as found in commerce consist of the brownish seed capsule, sometimes still containing the black seed, but usually it has shattered out.

The handsome red berries of the smooth or upland sumac should be gathered and dried while bearing the velvety covering, which gives them their acid taste.

Every country boy and girl knows the keen delight of roaming meadow or forest in search of rosin weed or spruce gum. The city boy or girl who spends a summer in the country, soon learns to love these fragrant country gums. A city family once received a box of spruce gum from Wisconsin, and were so pleased with it that they at once wrote to their country cousins to pick and put up little boxes of the gum which they would undertake to sell for them among their city friends.

The country children were only too glad of this chance to earn a little spending money. They made neat little boxes of pliable birch bark, and lined them with paraffin paper. Into these they packed the gum. Some of it they melted into cakes and sweetened, but the city children liked the natural flavor best as a rule. The next season the city cousins spent a summer in the country and picked great quantities of rosin weed gum which they packed in bark boxes tied with raffia and sold to city friends as they did the spruce gum.

The rosin weed gum is the sap from the weed, and the weeds must be broken. They are allowed to stand for days till the dripping sap is ripe.

## CHAPTER XVI

### CULTIVATION OF POP CORN

A DELIGHTFUL garden feature which affords considerable profit is that of growing pop corn. From \$50 to \$100 worth of this product may be raised on the back of a town lot. The value of an acre of pop corn is from \$200 to \$500.

Aside from the money making there is great pleasure in having a supply of pop corn through the winter evenings. The surplus stock can always be sold to neighbors or dealers. Most any variety of the grain will give satisfactory results if properly handled, and by judicious selection of seed the chosen variety can be improved from year to year.

Pop corn can be successfully grown on any soil that is adapted to field corn. When planted in rotation crop and for commercial purposes, pop corn generally takes the place of the ordinary field corn in the order of planting. Plowing may be done in early spring or in the fall. If old sod land is to be used it should be plowed in the fall to expose worms and insects to the winter frosts.

In order to succeed best with pop corn it should be planted as early as possible in the summer so that it

will have a long season in which to grow and mature. If harvested in an immature condition it will not give as flaky and crisp pop corn balls as can be made from fully ripened corn. A warm, well-drained lot, free from marshy places, should be selected. A sandy loam is best. The soil should be plowed or spaded to a depth of eight inches or more and the surface of the plat thoroughly pulverized.

Rows should be about three feet apart. A small furrow two or three inches deep is sufficient. Kernels should be dropped eight or ten inches apart in the row and covered to a depth of one inch. Planting should be done before the moisture has had time to dry out. Grass and weeds must be kept down while the corn is making its early growth. The soil should be kept loose over the surface by frequent cultivation or hoeing. Instead of having two or three long rows, plant the crop in a square space. Two to four quarts will be sufficient to plant an acre.

As soon as the plants are a few inches high, begin cultivation. Repeat the operation every week or ten days. If heavy rains cause crustation of the surface earth it will be necessary to cultivate oftener. Before planting a deep seedbed should be prepared. After planting cultivation should be shallow.

Pop corn ripens in from 100 to 130 days after planting. Liberal applications of phosphatic fertilizer will hasten the ripening, but if too much stable manure is used the ripening may be retarded. It should be

ripened before the frost arrives as after that it deteriorates and will have little market value.

When the little crop is ripe the ears are to be husked from the standing stalks and spread out in a well-ventilated room to dry and cure. They should not be piled up in a large heap or sacked before they are well dried out. It is best to leave the corn on the stalks until the husks are firm and dry, with none of their sappy condition left. The ears may be stored in any place where the air can circulate around them freely and where they are safe from moisture, birds and mice. Overhead racks made of narrow slats or wire netting do nicely for this purpose. The room is not to be too warm or the grain will dry out too much. Just a moderate temperature with good ventilation is required. Heating will injure the popping quality and food value of the product.

Until the summer following the season in which it has been grown, pop corn will not be ready for market. Manufacturers state that June 1 is the proper time to put corn out for sale.

Some growers, instead of selling their product by the pound to elevator men, have well-constructed cribs of their own. This enables them to hold their crop until it can be marketed advantageously. They can sell direct to the consumer.

The market price of pop corn varies considerably from year to year. In most states the weight per bushel is the same for pop corn as for field corn: 56

pounds shelled or 70 pounds of ears dried constitute a bushel. One hundred pounds of ears should yield 80 pounds of shelled pop corn.

It is well to have a seed plat planted with exceptionally good seed in some isolated location, to furnish seed for the next year. All weak and in any way defective stalks should be detasseled before they get a chance to shed any pollen. At harvest time the rows should be gone over and seed ears carefully selected from the best stalks. Early maturity can be attained by taking seed from good, early maturing stalks each year. It is neither advisable nor necessary to procure new seed for planting each year from a distance. Home grown seed is much to be preferred because pop corn is not at its best until fully acclimated. This takes several years. The yearly planting of a seed crop from the best of the previous crop will improve the strain while the corn is becoming adapted to the soil and climatic conditions of the locality.

## CHAPTER XVII

### PRODUCTION AND SALE OF VEGETABLES

HERE and there we see examples of young people earning considerable money with plans of marketing produce. City families are eager to buy vegetables, poultry products, fruit, etc., directly from the farm, and this makes an opportunity for boys and girls, whether they live in town or country.

Go among housekeepers and arrange to deliver to them once a week or oftener a certain quantity or variety of farm commodities, ascertaining what they prefer, how much they can use and what they are accustomed to pay. Next visit farmers who can be reached conveniently and secure such products as your customers require. Arrange to call at regular intervals with a horse and wagon. If you are not attending school a daily trip is feasible. If you have to hire the conveyance the business must be on a large enough scale so that it will be worth while.

If a horse and wagon are hard to get it is possible to confine the whole business to farms convenient to railway stations five or ten miles out. Goods can be sent by express or parcel post and carried in baskets.

As there is a wide margin between the prices which

farmers usually receive and those paid by consumers there is a chance for good profits if care is taken to keep down the expense of transportation.

If young people rent a small tract of land convenient to transportation, or have the use of an acre or two owned by their parents, they will be in a position to earn considerable money. At first it is best to raise only the more common and hardy vegetables.

In operating a small tract of land with a view to a commercial business, berries and currants should not be overlooked. These bush fruits can to a great extent be placed in odd spots, and they will help to make otherwise worthless land return quite a little money. Where a nice piece of ground is given up to bush fruit it pays to raise vegetables between the rows. Quick growing truck can be produced both before and after the berry season, and in this way the land does double duty and pays big dividends. The extra cultivation is a good thing for the soil. Where the ground which maintains berries is used for vegetables also a liberal supply of barnyard manure should be worked into the soil every fall.

#### CELERY

The celery crop ought to be worth at the rate of \$1,000 an acre. A great deal of money can be earned on a single town lot. It is customary to buy the young plants in the spring. A clean, rich, moist seed bed is prepared on some protected patch of ground. Plenty of fine compost is worked into the soil before

and after plowing or spading. The bed is worked down as fine as possible and a thin scattering of wood ashes is worked into the surface soil. When the bed has been worked down till it is moist and mellow mark off the space in rows one foot apart in shallow drills and sow the seed — about an ounce to 100 feet of row. These are covered about a quarter of an inch deep and the seed firmed in with a small roller. Water is necessary at this stage, and it is best that the surface be kept wet till the seeds germinate. A covering of cloths which will shade the soil till the plants begin to show is advised. As the plants come through gradually remove the covers and harden them to the sun-light.

Early thinning of the plants is important at this juncture if we are to have large, stocky plants to place in the permanent rows. Thin to about thirty plants to the foot. As the plants come on they should be cut back once or twice to induce greater stockiness of both root and top. Then comes the work of transplanting.

The soil having been worked down into shape is marked off in rows three feet apart with a big shovel, going twice in the row to get the desired depth. Then the furrows are worked full of moist soil mixed with compost, on the top of which is sprinkled a good coating of wood ashes. This is then raked into the soil and a line stretched down the furrow about level with the surface. Have the soil moist and freshly stirred and set the plants about six inches apart in the row.

Set from the first of July till the first of August for fall and winter use. Wet the seed bed thoroughly before pulling the plants, and it is not a bad policy to pour about a half pint of water around each plant as set. Let the water soak down and rake in loose earth to cover.

The tillage consists merely in keeping the patch free of weeds and the surface mulch loose. After the first plowing or spading begin to ridge up the soil about the plants with the hoe or cultivator. After the plants have made a good growth and nights have begun to get cool along in August we must begin to bleach the celery.

The board method is about the handiest means for doing this. A board ten inches wide is set up at either side of the row, allowing only the tips of the leaves to protrude at the top. By setting the boards a little farther apart at the bottom and staking securely to their places we can expect a fine grade of celery at cutting time. Should cold weather set in before we get the crop out, dirt can be banked over the boards by laying a strip over their tops.

The older method of blanching was to bank up earth about the plants. This is best done gradually in two or three operations. Soil is dug up from between the rows and banked around the plants—up to the tips of the leaves at the last time over. Care must be taken to have every stalk standing up straight and unbroken by rough handling.

In preparing for market we must take the celery in

on dry days before it freezes. Frozen celery rots quickly. Keep the stalks dry and let a bunch of earth adhere to the roots. Pack in moist earth and water frequently till ready to sell. To prepare for market, scrub the bunches with a stiff brush and trim off all yellow leaves and broken stalks.

#### RADISH

The radish is quite hardy and may be grown throughout the winter in hotbeds in the North, in cold frames in the latitude of Washington, and in the open ground in the South. For the home garden the seed should be sown in the open ground as soon as the soil is moderately warm. Plant in drills 12 to 18 inches apart, and as soon as the plants are up thin them slightly to prevent crowding. Radishes require to be grown on a quick, rich soil, and some of the earlier sorts can be matured in two to three weeks after planting. If the radishes grow slowly they will have a pungent flavor and will not be fit for table use. For a constant supply successive plantings should be made every two weeks, as the roots lose their crispness and delicate flavor if allowed to remain long in the open ground.

#### RHUBARB

The soil for rhubarb should be deep, and there is little danger of having it too rich. Like asparagus the seedling plants of rhubarb can be grown and transplanted. Ten to twelve good hills are sufficient to

produce all the rhubarb required by the average family, and these are most easily established by planting pieces of roots taken from another bed. Good roots may be secured from dealers and seedsmen at about \$1.50 a dozen. The old hills may be divided in the early spring or late fall by digging away the earth on one side and cutting the hill in two with a sharp spade, the part removed being used to establish a new hill.

The usual method of planting rhubarb is to set the plants in a single row along the garden fence, and the hills should be about 3 feet apart. If more than one row is planted the hills should be  $3\frac{1}{2}$  or 4 feet each way. The thick leaf stems are the part used, and none should be pulled from the plants the first year after setting. Rhubarb should receive the same treatment during winter as asparagus, and the plants should never be allowed to ripen seed. The roots may be brought into the greenhouse, pit, cold frame, or cellar during the winter and forced. Rhubarb does not thrive in warm climates.

#### SALSIFY, OR VEGETABLE OYSTER

Sow seeds of salsify during the spring in the same manner as for parsnips or carrots. In the South, a sowing may be made in summer to produce roots for winter use. One ounce of seed is required to plant 100 feet of row, and on a large scale 10 pounds to the acre. After the plants are well established they should be thinned sufficiently to prevent their crowd-

ing. The cultivation should be the same as for parsnips or carrots, and frequent use of a wheel hoe will avoid the necessity for hand weeding. Salsify may be dug in the autumn and stored or allowed to remain in the ground during the winter, as its treatment is the same as for parsnips. Salsify is a biennial, and if the roots are not dug before the second season they will throw up stems and produce seed. It is of a weedy nature and care should be taken that it does not run wild by seeding freely.

#### PEPPERS

Plant the seed of peppers in a hotbed, and transplant to the open ground as soon as it is warm, or sow the seeds in the garden after all danger of frost is past. When grown in the garden the plants should be in rows 3 feet apart and 15 to 18 inches apart in the row. The plants require about the same treatment as the tomato. There are a large number of varieties of the pepper, including the large sweet sorts used for pickling and the small hot kinds, such as Chili, Tabasco, and Cayenne.

#### POTATO

Sandy loam, fertilized with barnyard manure and a high percentage of potash is best for potato growing. The first crop should be planted as early as it is possible to work the land. Rows should be  $2\frac{1}{2}$  to 3 feet apart; hills 14 to 18 inches apart. Lay off the rows with a one-horse plow, and drop seed in the bottom of

the furrow. Cover seed to depth of 4 inches. In ten days to three weeks the sprouts will show. Frost does not injure the new crop if it does not touch the seed potatoes. Growth begins as soon as the soil is sufficiently warm. Surface soil should be stirred carefully when the potatoes appear above ground, and as the plants grow, ground should be banked around them for support, and protection to the tuber.

After potatoes are dug they should not be exposed to the sun, or any strong light while in storage. A cool cellar or pit is best for storing new potatoes, which may be covered lightly with straw, as an extra precaution. The ideal temperature for keeping Irish potatoes is between 36° and 40° F., but they will not withstand freezing.

#### CABBAGE

Early cabbages require a rich, warm soil in order that they may mature early. For late cabbages the soil should be heavier and more retentive of moisture and not so rich as for the early crop, as the heads are liable to burst. Cabbages should be set in rows 30 to 36 inches apart and 18 to 24 inches apart in the row. Where the plants are set out in the autumn and allowed to remain in the ground over winter, they are usually placed on top of ridges. Early cabbage must be used soon after it has formed solid heads, as it will not keep during hot weather.

Late cabbage may be buried in pits or stored in cellars or specially constructed houses. The usual

method of storing cabbage is to dig a trench about 18 inches deep and 3 feet wide and set the cabbage upright, with the heads close together and the roots bedded in soil. As cold weather comes on, the heads are covered slightly with straw and then 3 or 4 inches of earth put on. Slight freezing does not injure cabbage, but it should not be subjected to repeated freezing and thawing. If stored in a cellar or building, the heads are generally cut from the stems and stored on slatted shelves or in shallow bins. While in storage, cabbage should be well ventilated and kept as cool as possible without freezing.

#### CUCUMBER

The soil for cucumbers should be a rich sandy loam, rather moist, but not wet. Plant in hills 4 feet apart each way as soon as all danger of frost is past. It is a good plan to work thoroughly a shovelful of well-rotted manure or a small handful of fertilizer into each hill in addition to the regular manuring of the land. The manure in the hill will give the plants a good start. Cucumbers are frequently planted in drills about 7 feet apart and thinned to 12 or 18 inches apart in the row. If it is desirable to secure extra early cucumbers, the plants may be started in a hotbed and transplanted to the garden by means of berry boxes. In the South, cucumbers are planted in the open ground as early as February or March. Cucumber seedlings are easily injured by cold, even where no frost occurs, and throughout the northern

part of the country the planting should be deferred until the soil is warm.

While young the cucumber plants are frequently destroyed by a small beetle that attacks the lower part of the stem and the under side of the leaves. To preserve the plants some remedy will be necessary, and where only a few hills are grown for family use the beetles may be kept off by covering the plants with frames over which fly screen or mosquito netting has been stretched. Another method of protecting the plants is to set an arch of wire or one-half of a barrel hoop over the hill and spread a piece of mosquito netting over this support. The edges of the netting may be held down by covering with earth, and as soon as the plants are beyond danger of attack the netting may be stored for future use.

Cucumbers should receive frequent shallow cultivation until the vines begin to run freely; after this very little attention is required except to pull out stray weeds as they may appear. In order to keep the vines in good bearing condition, no fruit should be allowed to ripen, and when grown for pickles the fruits should all be removed while quite small.

As cucumbers are subject to several diseases, the old vines and fruits should all be destroyed and the crop should not be planted two years in succession on the same land. As a rule garden cucumbers and melons will not be greatly injured by diseases. The fact that the product is handled while green and firm is very much in its favor.

### EGG PLANT

The plants for this crop should be started and handled in the same manner as described later for the tomato. After the weather has become settled and the ground quite warm, set the plants in the garden in rows 3 feet apart and 2 feet apart in the row.

### HORSE-RADISH

Horse-radish will thrive best in a deep, rich soil, where there is plenty of moisture. The rows should be 3 feet apart and the plants 12 to 18 inches apart in the row. Tops cut from large roots or pieces of small roots are used for planting. A comparatively few hills of horse-radish will be sufficient for family use, and the roots required for starting can be secured of seedmen for 25 or 30 cents a dozen. This crop will require no particular cultivation except to keep down the weeds, and it is inclined to become a weed itself if not controlled.

The large fleshy roots are prepared for use by peeling and grating. The grated root is treated with a little salt and vinegar and served as a relish with meats, oysters, etc. The roots should be dug during the winter or early spring before the leaves start. After being treated with salt and vinegar the grated root may be bottled for summer use.

### LETTUCE

This crop attains its best development in a rich sandy loam in which there is plenty of organic matter.

Lettuce thrives best during the early spring or late autumn and will not withstand the heat of summer. In order that the leaves may be crisp and tender, it is necessary to force the growth. The usual method of growing lettuce for home use is to sow the seeds broadcast in a bed and remove the leaves from the plants as rapidly as they become large enough for use. A much better method is either to thin or transplant the seedlings and allow the plants to form rather compact heads and then cut the entire plant for use.

In the Southern States the seeds may be sown during the autumn and the plants allowed to remain in the ground over winter. In the North the seeds may be sown in a hotbed or cold frame and the seedlings transplanted to the open ground, or the seeding may be in rows in the garden and the plants thinned to 5 or 6 inches in the row. Lettuce may be grown in rows about 12 inches apart. In order to produce crisp and tender lettuce during the summer months, it may be necessary to provide some form of partial shading.

#### MUSKMELON

A sandy loam with plenty of well-rotted barnyard manure will be found to be adapted to the cultivation of the muskmelon. When commercial fertilizer is used instead of manure, it should be applied at the rate of from 500 to 1,000 pounds of high-grade material to the acre. The muskmelon requires a long season to develop and is easily injured by frost or even by cool weather.

For an early crop in the North, start the hills in a hotbed in berry boxes and plant out after the soil becomes warm. For the main crop throughout the country the seeds are planted in the open ground as soon as the soil is reasonably warm. Place the hills about 6 feet apart each way and 8 or 10 seeds in a hill. After the plants become established, thin out all but the four best ones. Another method is to sow in drills and thin to single plants 18 inches to 2 feet apart. Good cultivation should be maintained until the vines interfere.

#### SPINACH

Spinach thrives in a rather cool climate and attains its best development in the Middle South, where it can be grown in the open ground during the winter. Cuttings are made at any time during the winter when the fields are not frozen or covered with snow. When the weather moderates in the early spring, the plants make a new growth, and a large crop of early greens is available.

In the North spinach can be planted in the autumn and carried over winter by mulching with straw or leaves. Sow spinach seeds in drills 1 foot apart at the rate of 1 ounce to 100 feet of row, or 10 to 12 pounds to the acre. A rich loam gives plants a quick growth.

#### SQUASH

There are two types of squash, the bush varieties, planted in hills 4 or 5 feet apart each way, and the

running varieties, which require from 8 to 16 feet for their development. They require the same soil and cultural methods as the muskmelon. Squashes should be handled carefully to avoid bruising and should be stored in a moderately warm, well-ventilated room. The Hubbard and Boston Marrow are the most common varieties.

#### TOMATO

In the North tomato plants are started in hotbeds and transplanted once or twice to harden the stock; in the South a cold bed or frame is sufficient, protected by cotton cloth during cool weather. In the southern parts of Florida and Texas large fields of tomatoes are planted in the same manner as corn, by placing five or six seeds in a hill where the plants are to be grown. After the seedlings become established, all but the two best are thinned out, and later but one is left in the hill. The tomato is one of the crops that can be hastened to maturity by carefully growing the plants indoors and transplanting to the open ground. Pot-grown plants are especially desirable, and they may be brought to the blooming period by the time it is warm enough to safely plant them in the garden. If the plants are not to be trained but allowed to lie on the ground they should be set about 4 feet apart each way. If trimmed and tied to stakes they may be planted in rows 3 feet apart, and 18 inches apart in the row. The quality is greatly improved by keeping tomatoes off the ground, using either trellises or stakes.

## CARDOON

The cardoon is a thistle-like plant, very similar in appearance to the Globe artichoke, but is grown as an annual. The seeds are sown in early spring in a hot-bed or cold frame and the plants transplanted later to the open ground. The cardoon should be planted in rows 3 feet apart and 18 inches apart in the row on rich soil, where it can secure plenty of moisture and make rapid growth. Toward autumn the leaves are drawn together and the center blanched in the same manner as endive. If intended for winter use, the leaves are not blanched in the garden, but the plants are lifted with considerable earth adhering to the roots and stored closely in a dark pit or cellar to blanch.

The blanching leaf stems are used for making salads, soups, and stews.

## CARROT

The culture of the carrot is practically the same as the parsnip, except that carrots are not thinned as much and are allowed to grow almost as thickly as planted. Carrots should be dug in the autumn and stored the same as parsnips or turnips. Any surplus can be fed sparingly to horses, mules or cattle.

The roots of the carrot are used at all times of the year, mostly in soups, but they may be boiled and served with butter or creamed. There is more food value in carrots than is commonly understood.

### CAULIFLOWER

Cauliflower requires a rich, moist soil, and thrives best under irrigation. Cauliflower will not withstand as much frost as cabbage. The culture is the same as for cabbage until the heads begin to develop, after which the leaves may be tied together over the heads in order to exclude the light and keep the heads white.

The tender heads of cauliflower are boiled and served with butter, or creamed, and are also used for pickling.

### CHICORY

Chicory is grown for two or three purposes. The root of this plant is the common adulterant of coffee and large quantities are used for this purpose. The commercial growing of chicory is confined to a few sections, as the crop will not thrive on every kind of soil.

A deep, rich loam, without excessive amounts of clay or sand, is desirable, and soil that is not too rich in nitrogenous matter is best suited to the production of roots.

The roots of chicory are frequently placed in soil under a greenhouse bench or in a warm cellar and covered with a foot or more of straw, or with a light covering of straw and then several inches of warm manure. Under this covering the leaves will be formed in a solid head, which is known on the market as witloof.

Chicory has run wild in some parts of the country

and is considered a bad weed. The handsome blue flowers of the chicory, which are borne the second season, are very attractive.

As a pot herb chicory is used like spinach, but the leaves should be boiled in two waters to remove the bitter taste. As a salad the roots are dug in the autumn and planted in cellars or under a greenhouse bench, where they produce an abundance of blanched leaves, which are eaten raw. The blanched leaves are also boiled and used as greens.

#### CRESS

Under the name of cress there are two forms, water cress and the upland cress. The upland cress, sometimes called peppergrass, is easily grown from seed sown in drills a foot apart. As the plants last but a short time, it will be necessary to make a sowing every few days if a continuous supply is desired.

Water cress can be grown all the year in small open ditches containing running spring water. It is best and most easily produced in water from rather warm springs in limestone regions. A sufficient supply for family use can be grown in a small spring-fed brook, and the plants may be started either from small pieces of plants or from seed. Cress is used in salads, to which it imparts a pleasant pungency.

#### MUSTARD

Any good soil will produce mustard. The basal leaves of mustard are used for greens, and as the

plants require but a short time to reach the proper stage for use, frequent sowings should be made. Sow seeds thickly in drills as early as possible in the spring, or for late use, in September or October. White mustard is the commonest form.

#### ONIONS

A rich sandy loam containing plenty of humus is best suited to the production of onions. This crop has been grown very successfully on the muck beds of the States bordering on the Great Lakes. The usual plan on a small scale is to plant one or two quarts of "sets" in drills 12 to 18 inches apart and 2 to 3 inches apart in the row, covering about an inch deep. When a large acreage is to be grown the soil is made very fine and smooth and the onion seed is sown in drills and then thinned to 2 or 3 inches apart after the plants become established. For the best results from seed, sow in cold frames during the fall or in a hotbed in the early spring and transplant to the open ground as soon as the soil is in good condition to work.

Onions require frequent shallow cultivation and it may be necessary to resort to hand work in order to keep the crop free from weeds. If it is desired to hasten the maturity of the bulbs by preventing continued growth of the tops, this may be accomplished by rolling an empty barrel over the rows and breaking down the tops. After the tops are practically dead the onion bulbs should be removed from the soil and spread in a dry, well ventilated place to cure, after

which they may be stored in crates or bags for winter use.

There are several kinds of onions that may remain in the soil over winter. The Multiplier or Potato onion can be planted from sets in the autumn and will produce excellent early green onions. This type of onion is peculiar in that a large onion contains a number of distinct hearts, and if planted will produce a number of small onions. On the other hand, a small onion contains but one heart and will produce a large onion. A few large onions should be planted each year to produce the sets for the following year's planting.

Another variety is the Top or Tree onion, which produces a large number of bulbets above ground on the top of a stem. The small bulbs can be planted in the autumn and will produce onions the following season.

The small onion known as the shallot is frequently planted in early spring for its small bulbs, or "cloves," which are used in the same manner as onions. The leaves are also used for flavoring. Where the climate is not severe, the seed may be sown in the autumn, and the leaves which are used for flavoring soups will be ready for use in the spring.

#### PARSLEY

Parsley seeds should be soaked a few hours in warm water, then sown and treated in the same manner as celery seed. In the North, parsley will live

over winter in a cold frame or pit, and in the South, in open ground. Parsley cannot withstand the heat of the summer. Plants should be set in rows 12 inches apart and every 6 inches in the row.

#### PARSNIP

Sow seeds early, in drills 18 inches to 3 feet apart. Thin plants to stand 6 inches apart in the rows. Rich soil and frequent cultivation are necessary for successful growing. Roots can be dug late in the fall, or allowed to remain and dug as required for use. Frozen roots have an unusually tasty flavor. All roots not used during the winter should be dug from the garden as they will produce weedy seed the second season. When parsnip has been allowed to run wild, the root is considered poisonous.

#### PEAS

Garden peas require a rather rich and friable soil with good drainage in order that the first plantings may be made early in the spring. Fertilizers that are high in nitrogenous matter should not be applied to the land immediately before planting, as they will have a tendency to produce too great growth of vines at the expense of pods. Land that has been well manured the previous year will be found satisfactory without additional fertilizer. A sandy loam is to be preferred for growing peas, but a good crop may be produced on clay soils; however, the pods will be a few days later in forming. Peas are easily grown and

form one of the most palatable of garden products.

For the best results peas should be planted in the bottom of a furrow 6 inches in depth and the seeds covered with not more than 2 or 3 inches of soil. If the soil is heavy the covering should be less than 2 inches. After the plants attain a height of 4 or 5 inches the soil should be worked in around them until the trench is filled. The rows for peas should be 3 feet apart for the dwarf sorts and 4 feet apart for the tall kinds. A pint of seed will plant about 100 feet of single row. Many growers follow the practice of planting in a double row with a 6-inch space between. The double-row method is especially adapted for the varieties that require some form of support, as a trellis can be placed between the two rows.

Brush stuck in the ground will answer for a support for the peas to climb upon. Three-foot poultry netting makes a desirable trellis. If peas are planted for autumn use, the earliest varieties should be employed.

#### ENDIVE

The endive is a form of chicory. Sow the seeds thinly in drills, and when the plants are well established thin to 8 inches. Water and cultivate thoroughly in order that a good growth of leaves may be made. When the leaves are 6 to 8 inches in length draw them together and tie them so the heart will blanch. The leaves should not be tied up while wet or decay will

follow. The heads should be used as soon as blanched. For winter use sow the seeds rather late and remove the plants, with a ball of earth adhering to the roots, to a cellar or cold frame, and blanch during the winter as required for use.

Endive is used as a salad at times of the year when lettuce and similar crops are out of season.

## CHAPTER XVIII

### LARGE RETURNS FROM SUCCESSION CROPS

PEOPLE are just beginning to grasp the idea of succession crops. Land properly handled may be made to do double duty and add greatly to acreage profits without decreasing soil fertility.

This kind of intensive work is especially important on little tracts such as boys and girls may cultivate. Even in the extreme North two or three crops can be produced on a piece of ground in one season, provided care is taken to make the right combination. A scheme like this is feasible:

Peas, followed by cabbage, beans, tomatoes or celery.

Onions, beets, beans and squash, followed by kale, turnip, kohlrabi or radishes.

Lettuce, followed by beans and tomatoes.

Spring spinach, followed by beans and tomatoes.

Early carrots, followed by spinach, kale, turnips and winter radishes.

Early corn, followed by a second crop of corn, by beans, tomatoes or celery.

For intercropping the following may be used:

Radishes with beets, carrots or parsnips, tomatoes or corn.

Squashes, pumpkins with corn.

Early onions, with cauliflower or cabbage.

Lettuce with early cabbage, corn or tomatoes.

Space in the garden may be saved by planting corn between alternate rows of potatoes after the last cultivation, and when the potatoes are harvested winter turnips may be planted, thus keeping the ground busy all the season. If early peas are planted three feet apart, corn may be started between the rows, and when the peas are off squash seeds may be put in. It is even possible to have pole beans climb up the corn stalks, although this is carrying intensive culture to extremes.

When the ground is to be kept covered all the season, it is necessary to have it rich, to cultivate it thoroughly and to use the hoe freely from spring until fall. If the owner of a little place is willing to observe these three points, it will be easy for him to grow an amount of produce that will amaze his neighbors. Fall plowing is essential and manure should be spread quite liberally and covered to a depth of 8 to 12 inches.

What to grow in the hotbed in order to get ready for this sort of intensive gardening depends on your market, or what you want to use it for. Leaf lettuce and radishes are always in demand in early spring. They are somewhat easier to grow than other crops. For lettuce, start a small bed early and transplant in spaces 4x5 inches when they have grown to the second leaf. The soil should be moist, but not wet. Do not water them until after the plants get a good start.

This matter of watering is a particular part of the work. Water should be applied only during the early hours of the day. Plenty of ventilation is also important, and the edge of the sash should be raised, according to the heat of the day, closing up in time to hold the heat after the sun goes down.

Radishes are easy to raise, but if they are forced too much they are liable to go mostly to tops. A few days longer in growing will give them better quality. All small, imperfect seed ought to be sifted out. The stand should average from one-half inch to an inch in the row, and the rows ought to be 5 inches apart.

It usually pays to start early tomatoes, cabbage, cauliflower and other tender vegetables in the hot-house, as thus they get a good start before the ground is warm enough for them. Products which pay \$200 to \$400 an acre under expert management may be grouped in the following order to illustrate relative value:

Group 1—Asparagus, tomatoes, celery, lettuce, peppers, beans and onions.

Group 2—Late white potatoes, sweet corn, cantaloupes and watermelons.

Group 3—Cabbage, squashes, cucumbers, peas, beets, radishes and pumpkins.

When young people take up this matter of double-cropping they should aim to make the season as long as possible and to get their commodities into market early enough so that they will reap the benefit of the highest prices. A little study will show them which

are the hardy and profitable early products. Usually it pays to start vegetables in a hotbed, but whether this is done or not when the peas, lettuce, radishes and other early crops are out of the way the ground can be utilized for celery, tomatoes, sweet corn, peppers, cabbage, etc.

When the sweet corn is disposed of late in the summer it is still possible to raise rutabagas, beets and carrots. Three crops in a season are nothing phenomenal even in the northern states, and it makes a kind of farming that is interesting and worth while. Anybody going into this kind of work should look out for the money-making possibilities, as it is useless to try to keep up interest in a project unless it pays.

It will be noticed anywhere in the country that if the owner of a farm encourages his family to take an interest in garden management the home premises will look well and become more profitable than they otherwise would.

Young people take a keen interest in novelty farming. They will delight in studying out plans for succession crops, and in this way they will make a garden pay well. A fact which should be kept in mind is that truck-growing may be made highly profitable on any farm, and therefore should not be treated as a side line. For instance, if a farmer who is accustomed to a return of \$20 to \$40 an acre from his big field crops can see a revenue of \$200 an acre from

vegetables, berries and flowers, he should be willing to make this feature a little more prominent than it usually is, especially when it serves to stimulate the interest of his sons and daughters.

## CHAPTER XIX

### ASPARAGUS GROWING

ONE of the standard vegetable crops which affords a considerable income from a very small piece of ground is asparagus. This can be handled in such a way as to give both early and late crops and thus take advantage of the market at its best periods.

All young people who have even part of a town lot at their disposal should learn something about asparagus growing. Practical experiments can be made with a very small bed of this product, and after one or two seasons if there seem to be liberal profits in the business it may not be difficult to secure enough land to enable the amateur gardeners to work up a large trade. The best plan for making asparagus beds pay is to canvass among families in the neighborhood and take orders up to the limit of production. In this way the best prices are obtained, and there will be great satisfaction in catering to a select trade.

While this chapter is mainly on asparagus growing I will take occasion to impress on the minds of young readers that a number of such products should be managed together in any gardening scheme. It is unwise to risk your whole source of income on one commodity. Such farming is apt to be ruinous in any case. There-

fore, while I wish to point out some of the advantages of handling asparagus, I would strongly urge all who are working along that line of industry to bring a variety of other vegetables into their projects. Those who are able to devote considerable time to gardening and marketing will do well to select a line of products which are suitable for canning. This work leads to big profits and a steady business.

In the present condition of asparagus growing, and because of the means of transportation now at the command of most growers, earliness is not so important a feature as it would be were all cities and towns supplied by their own immediate suburbs. However, it may be of some advantage to the grower to have an extra early variety as they are first in the market, or it might be profitable to a "local" grower to have both early and late, in order to have a long cutting season as well as the command of early prices if his market depends entirely on local supplies. In the northern localities there is really not much advantage gained from early asparagus as the market has undoubtedly already been amply supplied by southern growers and the price thereby somewhat depressed.

Many asparagus growers contract to deliver all their product to the cannery at a fixed rate, and for these growers the early variety has no attractions, unless universally grown, as the cannery only begins operations when crops of considerable quantities are sure to be delivered to them.

From early in March until July outdoor-grown asparagus is on the market, the earliest coming from our Southeastern seacoast and the latest from New England and northwestern New York, with the different intermediate localities sending in their quota some time during this period.

Six weeks from date of beginning to cut, or perhaps, if the bed is very vigorous, eight weeks therefrom, one should cease cutting and permit the succeeding shoots to develop, that the roots may have a chance to recuperate for the next season's crop. Young beds, however, are not cut for market until the second spring after having been set out, and then only a light harvest should be made, lasting perhaps three weeks, as the roots will not stand a full harvest of six or eight weeks before they are three years old without suffering permanent injury.

If green asparagus is desired, the stalks need be cut only so far beneath the surface as to furnish a 9 or 10 inch spear, the major part of which, say 6 inches or more, will be green, and of course above ground. If white asparagus is sought for, the rows will have been ridged from 10 to 15 inches above the crowns, and the spears must be cut as soon as they show at, and before they peep above, the surface. This means cutting 9 or 10 inches below the surface. To accomplish this, long chisel-like knives of various shapes are used. These knives are from 12 to 15 inches long, and the cutting edge is on the end.

Cutting should be done at least every day, and when

vegetation is rapid twice each day will be necessary for white asparagus, and is often desirable when the green sort is being cut.

If a grower is unwilling or unable to exercise the necessary care in producing seed it would be better not to attempt it, but to depend upon some reliable dealer, avoiding those whose claims to patronage are based upon cheapness of stock.

A careful selection should be made of seed-bearing shoots which possess the desired characteristics. The seed should be carefully developed before being gathered and the young plants should receive the best attention. Both in planting and subsequent attention the bed should receive thorough and rational treatment, otherwise it will not be a success.

An observant grower will note two facts in connection with this branch of gardening; each year some clumps produce earlier, larger and finer spears and that some stalks bear seed while others do not. Ordinarily non-seedbearing stalks bear the largest spears.

During the spring cutting of the year preceding that in which the seed is to be saved, the clumps producing the largest, finest and earliest spears should be marked. Four or five seed-bearing to one producing non-seed-bearing stalks, which grow very compact, should be selected in order that the pollen may be effective. In the spring one or two of the earliest stalks in each of the hills should be permitted to grow, cutting the later-appearing spears as is done with spears intended for market. These early stalks of

both male and female plants will bloom together before any other stalks, and the blooms on the female plants will be fertilized with the pollen of the selected male plants. This is of importance, for on proper fertilization depends the purity of the seed as well as the vigor of the resultant plants.

Not all seed of even a good plant properly fertilized should be used for reproduction, as of the seed gathered from any plant some will be better than others. Only the largest, plumpest, best-matured seed should be used, for by saving these the most nearly typical plants of the sort will be more certainly produced. The selection of the best seed from typical plants is as essential to success as are good soil, thorough cultivation, and heavy manuring.

The best seed are produced from the lower part of the stalk, hence it is well to top the plant after the seed are well set, taking off about 10 inches, and to remove the berries from the upper branches, that all the strength may go to the full development of the more desirable berries. If, after this has been done, there is more than sufficient seed for the purpose desired, a second discrimination can be made between the seed of plants which produce numerous berries and those which are shy bearers, the latter being desirable, as this indicates a tendency in the plant to produce stalk rather than fruit, and it is as a stalk producer that asparagus is valuable.

Harvesting, cleaning, and preserving the seed is, of course, to be done carefully; the separation of the

heavy and light seed can be accomplished by means of water, while the larger can be selected from the resultant mass by the use of a properly meshed sieve.

When the berries are scarlet red and fully ripe, the entire plant is cut near the ground and put away where it is free from rain or dampness, and safe from the attack of birds or from other damage.

When there is somewhat more leisure, the berries are stripped off, soaked in water for thirty-six or forty-eight hours to soften the skin and pulp of the berry, and then rubbed between the hands until the black seed are freed entirely from the pulp. Spread and dry and put away in a paper or linen bag until needed. It is not wise to use seed over 2 years old, although they will retain some vitality for several years.

Fresh seed may be distinguished by the uniform smooth surface and the brilliantly black scale; the old seed have a smutty, gray color, and the surface is much roughened and wrinkled. One pound of seed will produce about 3,000 sprouts, and should be sown in a light, rich, sandy soil in rows about 15 inches apart and 1½ inches deep; so thinly should the seed be sown that the plants will not stand closer than 1½ or 2 inches, and these should afterwards be thinned by hand to about 3 inches apart, care being taken to leave the strongest and most thrifty shoots.

Careful weeding and hoeing are needed throughout the growing season, and in dry weather irrigation will greatly increase their growth.

Asparagus will grow on most soils, and will yield large crops upon stiff soils; but for the purpose of the grower for market, a light sandy soil of fair fertility is much to be preferred, both because of the earliness with which it produces marketable spears and the ease with which it is cultivated.

A soil on which water stands after rain, or under which the standing subsurface water is near the surface, into which the roots are liable to penetrate, is to be avoided. Of course, such a soil, if otherwise suitable, can be made fit by a thorough system of underdrainage, since an occasional overflow, or even a submergence of the beds for several days, is not necessarily injurious if the drainage, either natural or artificial, is good. There are instances where established beds have been under water for a lengthy period during heavy spring rains or very high water and were not injured.

The soil should be free of roots, stones, or any trash that will not readily disintegrate or that will interfere with the growth of the spears. Yet the writer knows a rather stiff but naturally well-drained soil which produces early and fine asparagus, notwithstanding the fact that it is full of large gravel, some of the stones being twice the size of a man's fist.

The use of a light dressing of fish manure several times during the season is recommended, as this fertilizer is excellent and cheap.

The application of liquid manure during the early growing season is of undoubted benefit, and the ad-

dition of potash and phosphoric acid to the stable manure will make the latter much more valuable and bring its proportions nearer to those of a complete fertilizer.

When potash salts (kainit or muriate) are used, the application of salt will be superfluous, even if it is ever necessary. On clayey soils salt is always dangerous, causing the soils to run badly and become pasty, while its benefits, except as a weed destroyer, are of a doubtful character.

The time of applying manure on beds, and the position where it should be placed, are of some importance. In the use of stable manure, both writers upon the subject and growers actually engaged in producing asparagus for the market almost unanimously state that "in the autumn, after the stalks have matured and have been cut, manure should be applied on top of the rows." Some give the caution not to put it just over the crowns, lest the shoots next spring be injured by contact with it.

The popularity which asparagus has achieved during recent years is remarkable. Formerly a luxury on the tables of the rich, it is now, during the season, a vegetable seen daily upon the tables of people of moderate or even of small incomes. It is also frequently recommended as an article of diet for the sick and convalescent.

The fact that asparagus appears in the market at a time of the year in which few or no other fresh vegetables are available has had much to do with its

increased consumption in our cities, the canned product being almost equal to the fresh article, and this has increased its use, being as it were a lengthening of the season. Growth is also easily forced out of its regular season, thus making the vegetable available for use from the beginning of December throughout the entire winter and almost until the regular spring season appears, but this product of the gardener's skill is naturally quite expensive. Field culture, too, is one of the most interesting innovations of the present age, and one which has been attended with the most striking success.

Within the last few years the cultivation of asparagus has been greatly extended, yet the demand is still greater than the supply, an indication that there is still room for an extension of beds by those already in the business and for the establishment of beds by those who have as yet given no attention to this branch of gardening. Every kitchen garden should have its bed, and it is hardly to be doubted that a diffusion of knowledge concerning the later and improved methods of culture, with their reduced cost and lightened work, would do much to increase the popularity of the vegetable, and bring about its cultivation in gardens where it has never found a place, but where its introduction would add greatly to the present diet of the family.

To the asparagus grower there are different methods by which plants can be secured. The seeds may be purchased, saved from a former growth or the young

plants may be purchased from a seedsman or professional grower. The second method is the quickest way to start a bed as well as the most easily disposed of. It is suggested that roots over 2 years old be rejected, and only 1-year old roots selected if a sufficient number can be secured, as the latter are much better and will in the course of a few years produce more and larger spears to the plant and yield profitable crops for a longer period. It is best to deal with reliable firms; they will be more likely to supply plants of both the kind and age desired. It is extremely difficult for any one not an expert to distinguish the difference between the various sorts, and doubtless many "varieties" are often supplied from the same lot of roots; nor is it easy to tell the difference between a strong, well-grown 1-year plant and a small and stunted 2-year old (the left over of last year's supply) left unmanured, uncultivated the second season, that the development might be retarded.

For the above reasons only reliable seedsmen should be trusted, or the seed should be procured from some neighbor who has the desired variety and has taken proper care in producing and saving the seed, if the first plan is to be followed. If one already has an asparagus bed of the desired sort, producing fine spears, and of the proper age (8 to 12 years old) for seed production, it is always best to save seed from it for new plantings.

## CHAPTER XX

### SUCCESS WITH MUSHROOMS

Boys and girls in their spare time can do well with mushrooms. There is no hard work in the project, but there must be watchfulness and intelligent care.

In raising mushrooms they do not require more space than can be had on an ordinary city lot. In many cases people make money fast by using an ordinary cellar. Closed sheds, barns or caves will serve the purpose, the first object being to secure a steady temperature at 55 to 58 degrees. The air should be moist, but there need be no sloppiness or flooding.

The hot weather of summer is unfavorable to this product, and consequently the best results are obtained when the weather is cool. However, as the market is steady it is worth while to get a place where the sun can be excluded and the temperature kept at the range stated. This is best accomplished in an underground room. In most cases failures in mushroom raising have been due to one or more of the following causes:

The use of poor spawn, or of spawn which has been killed by improper storage.

Spawning at a temperature injuriously high.

The use of too much water either at the time of spawning or later.

Unfavorable temperature during the growing period.

In the growing of mushrooms for commercial purposes the beds should be constructed of stable manure which has been fermented or composted. Many experiments have been made looking toward the substitution of other composts or waste products for stable manure, but nothing has been found which may be more highly recommended. Fresh manure should be obtained, and this should include the litter used for bedding the animals, unless the latter consists of coarse weeds. It is a great mistake to attempt to use manure free from straw. Again, stable manure which has been well trampled is nearly always well preserved, and is frequently much richer than any other kind.

The manure should be piled in heaps about three feet deep, when well pressed down with the fork, and these piles may be of considerable extent. It should be watered until well moistened throughout, but not drenched. In the course of four or five days, or a week, it will be necessary to fork over the manure. A second turning will be required usually in from seven to ten days, and it may be necessary to water again if the material has suffered considerable drying out. If well pressed down and merely moist, the manure will not burn.

In from fifteen to twenty-one days the temperature will begin to fall, the violence of decomposition will begin to show a subsidence, and the compost will be

ready for construction of the beds. The bacteria of rapid decay will become less and less abundant, and finally, when the beds are prepared, the spawn will be able to grow in spite of the bacteria present.

The beds should be ten or twelve inches deep, and when the manure has been placed its temperature ought to be about 70 degrees, while that of the room is 55 to 58. The heat of a bed may be slackened by mixing in a little light soil or by turning the manure. Only enough moisture is needed to keep the bed from drying out.

In mushroom growing one of the first requisites is that of securing a fresh, reliable spawn. This material is easily injured by even a short period of storage under improper conditions. In the past small growers have suffered most, as they frequently purchase any spawn which is on the market.

The English brick spawn is probably the best obtainable. Reliable seedsmen will refund the money if the spawn is unsatisfactory, or furnish a new supply. These bricks are broken into pieces about two inches square and placed under the surface not more than two inches. They may be a foot apart. After the mushrooms have matured they must be picked every day or two. When a bed ceases to bear it must be replaced with fresh manure and spawn. Beds may be made in boxes or on shelves, as well as on the floor. Mushrooms sell for 50 cents a pound as an average.

They must be picked when they are fresh and plump, and just before the frill which joins the cap

and stem breaks apart. If the stems are growing too long, pick them a little earlier than otherwise. Never wait for the crop to be larger. Each mushroom must be picked when it is ripe—not when some more will possibly be ready. Great care should be used in handling them for they are extremely delicate, and bruise easily. No buyer wants discolored mushrooms, you must remember. In picking, do not cut off with a knife, but pull them, root and all. A gentle but firm grasp of the stem will bring the plant up, then place root end down in the basket, for marketing. Of course the actual root is cut off after the mushroom is out of the ground, but the stem is as valuable as the cap, so do not waste it. Beds from which the mushrooms are pulled are in better condition for the next crop, because there are no decayed roots to furnish breeding places for destructive insects. This is a feature of the culture which must be kept in mind, for mushrooms are as susceptible as other crops, and must be protected in the same way. Summer crops are often infected with maggots, and no remedy has been found which effectually cures them. Cool cellars are the safest places for mushroom beds, and clean beds are the surest to produce large and perfect crops.

## CHAPTER XXI

### CANNING FRUITS AND VEGETABLES

THE canning of fruits and vegetables affords an opportunity for pin money or a paying business to the young people who live at home and are fortunate enough to have some knowledge of the practical side of housekeeping. Boys as well as girls can handle this proposition — for some of the most successful amateur canners I know are boys of about the age of fifteen. I say those who are fortunate in having a practical working knowledge of housekeeping because for every girl who can bake a cake and make a dress there are half a dozen who cannot, and who, more is the pity, seem to be proud of their ignorance and uselessness. This is an age when efficiency is the watchword, and the girl with the homely accomplishments of everyday housework may congratulate herself.

In a single year recently 7,793 canning-club girls who rendered full reports of their work put up 1,918,024 cans, jars, and other containers of fruits and vegetables, which were worth, according to conservative estimates, \$284,880, of which nearly \$200,000 could be credited to profit. It is estimated that the average

profit per member was \$23.30. These figures, of course, do not include the products of many thousands of other children who failed to send in accurate reports but who, it is known, raised and canned thousands of dollars' worth of products from their own gardens and from their fathers' truck patches.

#### SIMPLE APPARATUS NEEDED

For your canning outfit purchase a good-sized wash-boiler with a copper bottom and a tightly-fitting cover. Have your tinsmith make a strong wire rack to fit the inside of the bottom. Ask him to bend down the heavy outside wire in four or five places, thus making feet to the rack. This will lift the rack an inch from the bottom of the boiler and remove the danger of breakage. Have a handle in the center sufficiently high to grasp easily. It must not, however, interfere with the lid of the boiler. This handle is of great importance, as it enables you to lift all the jars at once. Without such a contrivance you must struggle to get the boiling-hot jars out of the deep boiler partly filled with boiling water. A wooden rack will answer as well as wire if it is more conveniently obtained. If it becomes necessary to lift the lids from the jars they must be thrown at once into boiling water and kept there until needed. If you take a spoon or fork to lift them see that the bowl of the spoon or the tines of the fork are dipped into boiling water before they touch the lid. Never place a lid or rubber on the table and then pick it up and put it

on the jar. The table, in all probability, has a little dust on it, which carries spores of mould and yeast. They will fasten themselves to the edge of the lid and contaminate the contents of the jar. In simple language, have everything boiling hot, and keep it so. When you have thoroughly grasped what it means to have everything absolutely sterile you will not look upon the canning of vegetables as a great mystery. It is quite as simple an operation as boiling a potato.

This sterilization is of the highest importance in connection with the canning of peaches and other fine fruits. Follow directions closely and success is assured. Canning methods are as simple as any of the work of housekeeping, but there must be absolute cleanliness at every turn. No class of preserving is successful without perfect sterilization, but in handling both orchard and garden fruits the value of each commodity is doubled by carefully observing methods. Although all this work is easily mastered, it would require many pages of print to give all the details. Experience and study are needed before the highest success can be attained. There are canning experts in nearly every family, however, and young people should seek their advice. A few of the leading commodities, and the methods of canning them, are presented here for the guidance of beginners.

#### SWEET CORN

An ear of sweet corn in the average dining car and

hotel, a la carte service, costs 25 cents. Considering this, canning corn on the cob for the market might prove profitable for thrifty young people.

One advantage of sweet corn canned on the cob over other canned corn is that all the best food values are kept with the cob. In cutting corn off the cob the germ quality of the kernel, which keeps up its standard, is usually lost. This germ quality is the part of the corn that is sought by rats and mice when they look for food in the corn bin and is the most vital part. Much of the corn is also rendered mushy when it is cut from the cob.

In regard to the container for corn on the cob it might be mentioned that for advertising and exhibition purposes, glass is much more satisfactory than the tin can, but if corn on the cob were to be put up in large quantities as a business venture, the glass would not be practical, being too expensive, but the tin cans would prove quite satisfactory.

Select sweet corn ears of uniform size and proper ripeness. If too ripe the corn will color while processing. Processing is the canning term for sterilization or cooking. If not ripe enough much of the food value is lost in cutting the corn from the cob. Use either glass jars or tin cans. For market purposes and greater safety in transportation use tin cans.

Remove husk, silk, shank, tips, and injured or defective places. Blanch corn in boiling water or steam chest for from 5 to 10 minutes. The time depends upon the stage of ripeness, size of ears, and degree of

freshness. Remove the ears and plunge quickly in cold water.

For corn cut from the cob cut with a sharp, thin-bladed knife. Pack well in glass jar or tin can; add hot water and a level teaspoon of salt to the quart or No. 3 can. Place rubber and glass-jar top in place, not tight. If using tin, solder cap in place and fill vent hole, or seal completely. Process the corn for 3 hours in the home-made or hot-water commercial bath outfits; for  $1\frac{1}{2}$  hours in the water-seal outfits; for 60 minutes when using from 5 to 10 pounds of steam pressure, with the steam-pressure canning devices, and 40 minutes when using the aluminum steam-pressure cooker outfit. After processing remove the jars, tighten covers, invert to test the joints, and cool.

If using tin, inspect the soldered end caps for pin-hole leaks. Repair all leaks and let the product stand for 24 hours. If cans are bulging at ends when cooled, one of two things is true — the pack is too full or some live spores are still left in the can. If the latter, replace in sterilizer and process the second time from 30 minutes to 1 hour.

For canning sweet corn on the cob, blanch in boiling water 5 to 10 minutes, according to ripeness, size and freshness; plunge quickly in cold water. Pack, alternating butts and tips; add just a little boiling water and one level teaspoonful of salt to each quart. Place rubber and top and partially tighten. (Cap and tip tins.) Process, 180 to 240 minutes in hot-water bath;

1½ hours water-seal outfit; 60 minutes under 5 or more pounds of steam; 40 minutes in aluminum pressure cooker. Remove jars, tighten covers, invert, and cool. Heat up for table use in steamer, not in water. If corn seems flat or water-logged, it has been overcooked or allowed to stand in too much water.

Use one or two quart glass jars for a part of the product. Quart jars will hold two ears, two-quart jars will hold from three to five ears, according to size of ear. Do not can large ears. Half-gallon or gallon tin cans with large openings should be used in the canning of ear corn when glass jars are not desirable. The gallon tin cans, including soldered caps cost about 6 cents apiece, but they hold 12 ears of corn, which is enough for a good-sized family. If the corn is removed from the can and steamed for a few minutes, it cannot be distinguished from the sweet corn removed from the husk in mid-summer. The corn can be heated in the container before opening to serve.

#### CORN AND TOMATO (COMBINATION)

Blanch fresh corn on the cob 6 minutes. Cold dip. Cut corn from cob, cutting from tip to butt. Blanch tomatoes 1½ minutes and cold dip. Remove skin and core. Chop tomatoes into medium pieces. Mix two parts of tomatoes with one part of corn and mix thoroughly. Pack in glass jars or tin cans. Add a level teaspoonful of salt per quart. Put rubber and cap in position, not tight. (Cap and tip if using enameled tin cans.) If using hot-water-bath outfit,

sterilize 90 minutes; if using water-seal outfit, sterilize 75 minutes; if using a 5-pound steam-pressure outfit, sterilize 60 minutes; or if using an aluminum pressure-cooker outfit, sterilize 45 minutes. Remove jars. Tighten covers. Invert to cool and test the joint. Wrap jars with paper to prevent bleaching, and store.

#### CORN, TOMATOES, AND STRING BEANS

Use one part of corn, one part of green string beans, and three parts of tomatoes. Blanch fresh corn on the cob for 6 minutes and cold dip. Cut corn from the cob, cutting from tip to butt. Prepare string beans and cut into convenient lengths. Blanch 4 minutes and cold dip. Blanch tomatoes 1 to 3 minutes and cold dip. Remove skin and core. Cut into medium pieces. Mix thoroughly. Pack in glass jars or enameled tin cans. Put rubbers and caps in position, not tight. (Cap and tip if using enameled tin cans.) If using hot-water-bath outfit, sterilize 90 minutes; if using water-seal outfit, sterilize 75 minutes; if using a 5-pound steam-pressure outfit sterilize 60 minutes; or if using an aluminum pressure-cooker outfit, sterilize 45 minutes. Remove jars. Tighten covers. Invert to cool and test the joint. Wrap jars with paper to prevent bleaching, and store.

#### TOMATOES

To cook tomatoes whole choose small, solid, round tomatoes. Put them into a colander or basket, plunge

them into boiling water, lift them and remove the skins. Pack them in wide-mouthed glass jars or tin cans. Fill the jars or cans to overflowing with cold water. If jars adjust the rubbers, put the tops on loosely, stand the jars on the rack in the boiler, surround them half-way up with cold water, cover the boiler, bring quickly to boiling point and boil for three minutes. Take out the jars and screw the tops down without lifting them. If you are using tin cans put on the lids, solder them, make the small hole in the center, put the cans into the boiler, bring them to boiling point, boil for three minutes; lift them, put a drop of solder over each hole, and stand them aside to cool.

For tomato conserve, get a peck of very nice smooth tomatoes, wash but do not peel them. Cut them into halves, put them into a porcelain kettle and cook slowly for three-quarters of an hour, being very careful not to scorch them. Press them through a sieve, return them to the kettle, and stew slowly until reduced to a thick paste. Fill perfectly clean half-pint jars with this paste, adjust the rubbers, and lay on the tops. Stand the jars on the rack in the wash-boiler, pour in sufficient cold water to cover them, bring to the boiling point and boil for one hour. Lift the rack with the jars, fasten the lids, and stand them aside. This paste is used for spaghetti and macaroni à la Italienne. It is also exceedingly nice for cream of tomato soup and sauces. Two tablespoonfuls to a

quart of milk make a good soup, and there is not the slightest danger of curdling. The open jar will keep in a cold place for a week.

#### ASPARAGUS

Asparagus for canning must be perfectly fresh. Wash and trim. Cover it with boiling water, boil rapidly for fifteen minutes, drain and cool. Arrange it neatly, butts down, in wide-mouthed glass jars; fill the jars to overflowing with cold water, adjust the rubbers, lay the lids on loosely, stand the jars on the rack in the boiler, surround them partly with cold water, cover the boiler, bring to the boiling point, and boil for one hour. Lift the rack carefully, screw down each top without lifting it, put the rack with the jars back into the boiler, cover the boiler and boil for thirty minutes. Lift the jars and stand them aside to cool. The next morning give the tops an extra turn if the glass has contracted, and keep in a cool place.

#### SPINACH

Wash spinach carefully through several cold waters. Cut off the roots, and throw the leaves in a large, dry, granite or porcelain kettle. Sprinkle over it a table-spoonful of salt to each peck of spinach, cover the kettle, push it over a moderate heat until the spinach is wilted. Drain and fill the jars with it. Finish the same as asparagus.

## BEETS AND PEAS

Select fresh, young beets, wash them thoroughly, boil them for thirty minutes, cool and strip off the stems. Trim the beets neatly and pack them in the jars. Fill the jars with cold water, adding a tablespoonful of vinegar to each jar. Adjust the rubbers, lay the tops on loosely and proceed as directed for asparagus, cooking the same length of time.

Peas, too, should be perfectly fresh; shell them, throw them into cold water. When you have the desired quantity ready select the jars, wash them carefully, and pack them full of peas. Then pour in sufficient water that has been boiled and cooled to fill the jars. Adjust the rubbers, lay on the lids; do not fasten them. Stand the jars on the rack in the boiler, partly surround them with cold water, bring to the boiling point, boil continuously for two hours. Lift the rack and screw down the tops, or fasten them. Stand the rack with the jars back in the boiler, add sufficient boiling water to cover the jars thoroughly, and boil rapidly for thirty minutes.

## MUSHROOMS

Mushrooms are as easy to can as any other edible. Select clean stock and peel and stem them. Pack them in the jars, and after the jar is full sprinkle over them a teaspoonful of salt. Shake it so that the salt will fall to the bottom of the jar. Adjust the rubbers, lay on the tops: stand the jars on the rack in the

boiler, put in sufficient cold water to come nearly to the top of the jars. Be careful not to have too much, or in boiling the water will overflow the jars. Cover the boiler, bring to boiling point, boil for an hour. Lift the jars on the rack; take off the lids and throw them into a pan of boiling water. Fill two jars from a third. Quickly put on the lids and fasten them. Stand the jars on the rack and back in the boiler. Add sufficient boiling water to cover the tops of the jars thoroughly, and boil for thirty minutes.

#### GRAPES

Use fresh fruit evenly ripened. Pick from the stems, wash, and pack in glass jars. Cover with a thin syrup, boiling. Put rubbers and caps in position, not tight. (Cap and tip if using enameled tin cans.) If using hot-water bath outfit sterilize 20 minutes, if using water-seal outfit sterilize 15 minutes, if using 5-pound steam-pressure outfit sterilize 15 minutes, or if using pressure-cooker outfit sterilize 8 minutes. Remove jars. Tighten covers. Invert to cool and test the joint. Wrap jars with paper to prevent bleaching, and store.

#### WILD GRAPES

Use fresh fruit evenly ripened. Pick from stems and wash. Pack in glass jars. Cover with thick, boiling syrup. Put rubbers and caps in position, not tight. (Cap and tip if using enameled tin can.) If using hot-water bath outfit sterilize 20 minutes, if using

water-seal outfit sterilize 15 minutes, if using 5-pound steam-pressure outfit sterilize 12 minutes, or if using pressure-cooker outfit sterilize 8 minutes. Remove jars. Tighten covers. Invert to cool and test joint. Wrap jars with paper to prevent bleaching, and store.

#### WILD PLUMS AND DAMSONS

Grade fruit for size and ripeness. Wash and pack in glass jars. Fill with thin or medium syrup, boiling. Put rubbers and caps in position, not tight. (Cap and tip if using enameled tin cans). If using hot-water bath outfit sterilize 16 minutes, if using water-seal outfit or 5-pound steam-pressure outfit sterilize 12 minutes, or if using pressure-cooker outfit sterilize 8 minutes. Remove jars. Tighten covers. Invert to cool and test joint. Wrap jars with paper to prevent bleaching, and store.

#### HUCKLEBERRIES

Stem and clean huckleberries. Pack in glass jars or enameled tin cans. Fill with thin syrup, boiling. Put rubber and cap in position, not tight. (Cap and tip if using enameled tin cans.) If using hot-water bath outfit, sterilize 20 minutes, if using water-seal outfit, or a 5-pound steam-pressure outfit sterilize 15 minutes, or if using pressure-cooker outfit sterilize 10 minutes. Remove jars. Tighten covers. Invert to cool and test joint. Wrap jars with paper to prevent bleaching, and store.

## FIGS

Select and grade stock. Blanch 6 minutes in boiling water and cold dip. Pack in glass jars or tin cans. Fill with medium syrup. Put rubber and cap in position, not tight. (Cap and tip if using enameled tin cans.) If using hot-water-bath outfit, sterilize 40 minutes; if using water-seal outfit, sterilize 30 minutes; if using a 5-pound steam-pressure outfit, sterilize 25 minutes; or if using a pressure-cooker outfit, sterilize 20 minutes. Remove jars. Tighten covers. Invert to cool and test the joint. Wrap jars with paper to prevent bleaching, and store.

## CHAPTER XXII

### PREPARING UNFERMENTED GRAPE JUICE

UNFERMENTED grape juice is an article of commerce which may well be considered by young people who are looking for new avenues in which to make money. This is another line of business in which one is not held down very closely. It is possible to earn considerable money during the grape season without giving up school or other occupations, and a little effort in preparing the grape juice for market may add many dollars to the income.

The grape contains 12 to 28 per cent. of sugar, about 2 to 3 per cent. of nitrogenous substances, and some tartaric and malic acids. The skins contain tannin, cream of tartar, and coloring matter. The seeds contain tannin, starchy matters, and fat. The stems contain tannin, diverse acids, and mucilaginous matter. The value of the juice made from any grape is determined by the relative proportion and composition of these various parts.

It is well known that grapes and other fruits when ripe have the invisible spores of various fungi, yeasts (ferments), and bacteria adhering to their skins and stems. When dry these spores are inert, but after the

grapes are crushed and the spores are immersed in the juice they become active and begin to multiply. If the juice is warm, the changes take place rapidly; if, on the other hand, it is cool, the change is slower. But in either case, if left alone, the organisms increase until the juice ferments. The most favorable temperature for fermentation is between 65° F. and 88° F. Cold checks, but does not kill, the ferment. This fermentation, now commonly called the elliptic yeast, changes the sugar in the grape to alcohol and carbonic-acid gas, and is the leading factor in converting must into wine. Hence it will be readily seen that to keep grape juice sweet fermentation must be prevented, and to be saleable the product must be clear, bright, and attractive.

Fermentation may be prevented in either of two ways:

(1) By chemical methods, which consist in the addition of germ poisons or antiseptics, which either kill the germs or prevent their growth. Of these the principal ones used are salicylic, sulphurous, boracic, and benzoic acids, formalin, fluorides, and saccharin. As these substances are generally regarded as adulterants and injurious, their use is not recommended.

(2) Mechanical means are sometimes employed. The germs are either removed by some mechanical means, such as filtering or a centrifugal apparatus, or they are destroyed by heat, electricity, etc. Of these, heat has so far been found the most practical.

When a liquid is heated to a sufficiently high temperature all organisms in it are killed. The degree of

heat required, however, differs not only with the particular kind of organism, but also with the liquid in which it is held. Time is also a factor. An organism may not be killed if heated to a high temperature and quickly cooled. If, however, the temperature is kept at the same high degree for some time, it will be killed. It must also be borne in mind that fungi, including yeasts, exist in the growing and the resting states, the latter being much more resistant than the former. A characteristic of the fungi and their spores is their great resistance to heat when dry. In this state they can be heated to  $212^{\circ}$  F. without being killed. The spores of the common mold are even more resistant. This should be well considered in sterilizing bottles and corks, which should be steamed to  $240^{\circ}$  F. for at least fifteen minutes.

Practical tests so far made indicate that grape juice can be safely sterilized at from  $165^{\circ}$  F. to  $176^{\circ}$  F. At this temperature the flavor is hardly changed, while at a temperature much above  $200^{\circ}$  F. it is. This is an important point, as the flavor and quality of the product depend on it.

Use only clean, sound, well-ripened but not over-ripe grapes. If an ordinary cider mill is at hand, it may be used for crushing and pressing, or the grapes may be crushed and pressed with the hands. If a light-colored juice is desired, put the crushed grapes in a cleanly washed cloth sack and tie up. Then either hang up securely and twist it or let two persons take hold, one on each end of the sack and twist until the

greater part of the juice is expressed. Then gradually heat the juice in a double boiler or a large stone jar in a pan of hot water, so that the juice does not come in direct contact with the fire, at a temperature of 180° F. to 200° F.; never above 200° F.

It is best to use a thermometer, but if there be none at hand heat the juice until it steams, but do not allow it to boil. Put it in a glass or enameled vessel to settle for twenty-four hours; carefully drain the juice from the sediment, and run it through several thicknesses of clean flannel, or a conic filter made from woolen cloth or felt may be used. This filter is fixed to a hoop of iron, which can be suspended wherever necessary. After this fill into clean bottles. Do not fill entirely but leave room for the liquid to expand when again heated. Fit a thin board over the bottom of an ordinary wash boiler, set the filled bottles (ordinary glass fruit jars are just as good) in it, fill in with water around the bottles to within about an inch of the tops, and gradually heat until it is about to simmer. Then take the bottles out and cork or seal immediately. It is a good idea to take the further precaution of sealing the corks over with sealing wax or paraffin to prevent mold germs from entering through the corks. Should it be desired to make a red juice, heat the crushed grapes to not above 200 degrees F., strain through a clean cloth or drip bag, no pressure should be used, set away to cool and settle, and proceed the same as with light-colored juice. Many people do not even go to the trouble of letting the juice settle after straining it,

but reheat and seal it up immediately, simply setting the vessels away in a cool place in an upright position where they will be undisturbed. The juice is thus allowed to settle, and when wanted for use the clear juice is simply taken off the sediment. Any person familiar with the process of canning fruit can also preserve grape juice, for the principles involved are identical.

One of the leading defects so far found in unfermented juice is that much of it is not clear, a condition which very much detracts from its otherwise attractive appearance and due to two causes already alluded to. Either the final sterilization in bottles has been at a higher temperature than the preceding one, or the juice has not been properly filtered or has not been filtered at all. In other cases the juice has been sterilized at such a high temperature that it has a disagreeable scorched taste. It should be remembered that attempts to sterilize at a temperature above 195° F. are dangerous, so far as the flavor of the finished product is concerned.

Another serious mistake is sometimes made by putting the juice into bottles so large that much of it becomes spoiled before it is used after the bottles are opened. Unfermented grape juice properly made and bottled will keep indefinitely, if it is not exposed to the atmosphere or mold germs; but when a bottle is once opened it should, like canned goods, be used as soon as possible, to keep it from spoiling.

Another method of making unfermented grape juice

which is often resorted to where a sufficiently large quantity is made at one time, consists in this:

Take a clean keg or barrel (one that has previously been made sweet). Lay this upon a skid consisting of two scantlings or pieces of timber about 20 feet long, in such a manner as to make a runway. Then take a sulphur match, made by dipping strips of clean muslin about 1 inch wide and 10 inches long into melted brimstone, cool it and attach it to a piece of wire fastened in the lower end of a bung and bent over at the end, so as to form a hook. Light the match and by means of the wire suspend it in the barrel, bung the barrel up tight, and allow it to burn as long as it will. Repeat this until fresh sulphur matches will no longer burn in the barrel.

Then take enough grape juice to fill the barrel one-third full, bung up tight, and roll and agitate violently on the skid for a few minutes. Then burn more sulphur matches in it until no more will burn, fill in more juice until the barrel is about two-thirds full; agitate and roll again. Repeat the burning process as before, after which fill the barrel immediately with grape juice and roll. The barrel should then be bunged tightly and stored in a cool place with the bung up, and so secured that the package can not be shaken. In the course of a few weeks the juice will have become clear and can then be racked off and filled into bottles or jars direct, sterilized and corked or sealed up ready for use. By this method, however, unless skilfully

handled, the juice might have a slight sulphur taste.

An ordinary cider press can be used in making grape juice. It is not expensive; nevertheless the majority of farms do not have one, and it frequently occurs that a farm is located so far away from any establishment dealing in such implements that the fruit might spoil or not be sufficiently valuable to justify the purchase price and time lost and expense incurred in getting it. The following is a description of a lever press, very efficient for this and similar uses, which any farmer handy with tools can make, the material for which can be found on almost any farm at any time. The press consists of the following parts:

Two upright posts set deep and firmly in the ground side by side and about 12 inches apart. (It is a good idea to attach some deadmen to them in the ground to prevent them pulling out too easily). Between these posts the lever is hung by means of a bolt, or the lever may be hung to the side of a building, or a hole notched into a tree large enough to admit the end of the lever and a bolt run through that. At the other end of the lever are two posts, so set that the lever can be raised up between them by means of block and tackle. The press itself consists of two timbers, on which the press bottom rests, and on this bottom is the press basket, consisting of the two sides and two ends, and so constructed that it can be easily taken apart and set up again, being held together at the ends by means of rods. The sides and ends should be bored

full of small holes from three-eighths to one-half inch in diameter to allow exit for the juice.

After the press is filled, the top (which is made to fit in the inside of the basket) and cross blocks are put on and the lever is then allowed to press down on it. A press like this has the advantage that it can be filled in the evening and left to press until morning. The precaution, of course, must be taken to set a tub large enough to hold the juice under the press.

It is perhaps well to state that the longer and heavier the lever, the greater the pressure it exerts. Where it is not convenient to make the lever very long, weights are placed or hung on the outer extremity of the lever to increase the pressure. It will thus be seen that with a little ingenuity a person can adapt the press to suit his individual requirements. For ordinary purposes a press basket 3 feet square and 2 feet high will be found a very convenient size. This will accommodate a ton of crushed grapes.

In the making of unfermented grape juice a great deal of judgment can be displayed and many variations produced so as to suit almost any taste by the careful selection of the varieties of grapes from which it is made. From the Mission grape, for instance, when fully ripe, a juice would be obtained that would be delicate and simply sweet, without any other taste; from the Muscat we would get that rich musky flavor found in our leading raisins; in the Concord that sprightly foxy taste so well known; in the Catawba or Isabella that fragrance so peculiarly their own, and in

the Iona a pleasing, mild, yet strong enough aroma and taste to strike the right spot. Thus we might continue along the list.

The uses of unfermented grape juice are indeed many. It is used in sickness, convalescence and good health; as a preventive, restorative and cure; by the young, by persons in prime of life, and those in old age. It is used in churches for sacramental purposes; at soda fountains as a cool and refreshing drink; in homes, at hotels, and at restaurants as a food, as a beverage, as a dessert and in many other ways. When people become accustomed to it they rarely give it up. When properly prepared, unfermented grape juice can be made to please the eye by its color and attractive appearance, the sense of smell by its aroma or fragrance and the palate by its pleasant flavor. It is food and drink, refreshment and nourishment all in one.

## CHAPTER XXIII

### CARING FOR HEDGES

BOTH boys and girls should understand the care of hedges and ornamental trees. This work has such a bearing on the appearance of a home that it should be made a subject of careful study, and young people who need to earn money may well receive a little training in anticipation of making their services valuable. Such work can be done by the hour or day, and as owners of lawns usually take some pride in their places they are willing to pay what is right for a little skilled service now and then. Such a line of activity can be carried on without interfering with school studies. It is even possible to earn a good many odd dollars in this way while holding some regular position.

One of the best forms for a hedge which is to serve either as a fence, windbreak, or as an ornament is the pyramid. When the plants are first set out in line they should be pruned or shortened to within 2 or 3 inches of the ground and allowed to grow undisturbed during the first season. At the end of the yearly growth the plants should again be pruned down to within 6 or 8 inches of the first pruning, any side or

horizontal growths being pruned within an inch of the main stem. During the growth of the second season the hedge may be partially shaped by an occasional pinching out of the points of stronger upright shoots, but preserving every shoot and leaf on the weaker side growths. In thus repressing the upright shoots and encouraging side growths a breadth of base will be secured which at this stage is most important. During the following winter the hedge, if it has progressed favorably, may be pruned into shape—that is, formed into a pointed pyramid, the sides being from 8 to 10 inches from the center.

These operations are in accordance with the principles that summer pruning will arrest growth to some extent, and that winter pruning will encourage the production of strong growths. By keeping these factors in view a hedge can readily be shaped without much destruction of growths and as readily maintained in a pyramidal form; but if the more upright or top shoots are allowed to predominate the lower side shoots will soon lose vigor, and thus the hedge will lose its efficiency as a barrier and its beauty as an object of ornamental utility. These details apply to deciduous plants, of which the Osage orange is an example. Evergreens, such as the arbor vitæ, require less labor in preparation or training and maintenance than deciduous plants, as most of them naturally assume a pyramidal form, and by a practice based upon the principles already noted good hedges can easily be produced. The main points are to keep the top of the

hedge shaped to a point and allow the sides to expand sufficiently, so that all parts of the hedge surface may be exposed to light. Once a year is ordinarily often enough to trim and the best time for this is just before the commencement of spring growth. When 5 feet high, the hedge should be about 3 feet wide at its base, or at the surface of the ground and all pruning should be directed with this in view.

The ideal street tree has a straight, well-defined central stem throughout its entire length, its side branches regularly distributed around. Trees of this form will withstand fierce storms and sudden bursts of wind without injury. Few deciduous trees assume this form naturally but by timely pruning when young can be greatly helped to approach it.

The growth is easily controlled if the training process is commenced while the tree is young. Not later than the second year after planting a careful inspection should be made after the leaves fall. From the shoots developing to leaders, select the fittest and remove the tops from the rest; also cut the points of any side branches that appear to require checking, in this way maintaining the symmetry of the tree.

The training process should really begin in the nursery where the growth of a leading shoot should be maintained and all side branches kept back by pinching their points. They should not be entirely removed as they serve to strengthen the stem for the time being — later they may be removed. Transplanting should not be done until the tree has attained a height of from

8 to 10 feet when all shoots should be removed by cutting them close to the main stem to a height of at least 6 feet. No further pruning will be necessary at this time.

The removal of all lower branches is required so that they may not interfere with the proper use of the sidewalks and streets, but this has a tendency to diminish the power of resistance of the tree against the sweeping blasts to which open streets are often subjected. As the lower branches extend they will droop at the end and become an interference, therefore, the trimming up from below will require attention for a number of years. However, cutting the branch from the main stem should be delayed till absolutely necessary.

## CHAPTER XXIV

### POULTRY IS PROFITABLE

Is there a fortune in poultry? In other words, can a boy or girl of ordinary intelligence and with a small amount to invest make poultry raising a profitable business?

Judging from the general development of the poultry business and observing the methods which have brought success, I am free to say that the industry is just coming to be properly appreciated. The work of successful poultry raising includes the following ideas:

House the fowls in clean, roomy and comfortable buildings.

Sell eggs mainly at fall and winter prices, and when the product is cheap use incubators and hatch chickens.

Build up a trade for broilers at two months and matured fowls at from one year to thirty months, as well as for guaranteed eggs delivered to customers once a week or at least once a fortnight.

Study feeding methods in order that poultry may be kept healthy and laying birds supplied with the proper materials for both nourishment and egg production. Keep in mind the economy of food as well as its nutritious qualities.

Select pullets from the best egg-producing strain of hens. Use no fowls for breeding unless they belong to families of chickens that are noted for healthfulness and egg production. Cull the flock regularly with this in mind. Use pure-bred males and change every year.

Do not allow vermin of any kind to obtain a start in the flock. If lice or mites are found on the chickens, do not waste an hour until the work of extermination is started. Clean up the flock and the premises absolutely. Keep all chickens, young and old, off wet ground in spring and fall. Give them plenty of range in summer and a reasonable amount of green food in winter.

A girl who lived out at the edge of a town had a number of hens all her own. The eggs were hers to do with as she pleased, provided she took care of the chickens without expense to her family. For some months she sold eggs at the stores, where she received from 15 to 25 cents a dozen. Then she began to figure, and decided that she might as well make a little extra money by selling to private customers direct. So she got some containers, or egg-packing boxes. In these she carefully packed some clean white eggs, well matched as to size, tying the boxes neatly and securely. Then calls were made on a number of housekeepers.

The first lady said: "I'm paying 35 cents a dozen at the grocer's, and I'll gladly pay 5 cents extra for eggs that I know to be fresh from the nest." She promptly put in an order for two dozen a week. She

called up a friend by telephone and asked if she would like to make a similar arrangement. In this way another good customer was secured. So the young merchant girl went her way with a light heart and easily found all the buyers she could supply with fresh eggs.

As she was careful to keep her hens warm and clean they responded with liberal supplies of the nicest eggs. In a short time the young lady realized that she was actually making money fast. She raised some more hens and steadily enlarged her business.

As soon as you have tested the demand for poultry that is handled in a careful and skillful way, and when you know of hotels, clubs, restaurants or private families that are willing and able to pay good prices for choice products, add duck raising to the enterprise. Make it a point to supply broilers at two months, in a good state of flesh, and then be prepared to supply the more matured birds as customers require. Do not be afraid to ask fair prices. Make it a point to have the business profitable.

Growing chickens do not lay until their bodies are fully covered with feathers. Nor do hens lay during the moulting period, for then the food is needed to build up their own vitality. Hens do not lay readily in cold weather. Winter must be turned into summer, as it were, and the natural foods of the summer season furnished them. Grain should be worked into straw litter, so as to keep the flock active.

Corn, wheat, barley, clipped oats, a warm mash of

ground feed and table scraps constitute a successful "menu" for laying hens. Skimmed milk and a little meat aid in egg production and in fattening the fowls. Clean water is always important. Feed for young chickens should be easily digested. Soft foods, such as rolled oats, cracked wheat and corn, hard-boiled eggs, corn meal, etc., are the best foods. No feeding is done until the chicks are thirty-six hours old. Then feed a soft mash, working up to the above mentioned foods gradually.

Chief of all is the feeding of the laying hen. There is a close relationship between the food eaten by the hen and the eggs laid. The various grains contain five elements—water, ash, protein, carbohydrates, and fat, varying in quantity. The body of the fowl and the egg contain these same elements in different form; i. e., the ash (mineral matter) of feeds is changed to bone and egg shell in the body of the fowl; the protein is changed from gluten into lean meat, or egg albumen, and the carbohydrates and the fat are converted from starch, sugar and oil into the fat of the body or the yolk of the egg.

It is impossible for a hen to do her best in laying eggs if she is fed a ration rich in carbohydrates and fat but containing little protein; she has little material for albumen on such ration, but plenty for the yolk of the egg. Carbohydrates cannot be changed into protein, although protein can be changed into fat, but as protein is a very small part of the grain, it is economy to supply a food that carries a large percentage of protein.

Practically all grains contain far more carbohydrates than any other element, and while nearly any grain can be utilized as feed, corn, wheat, oats, buckwheat, and sunflower seed will be found the most economical. Sunflower seed contains a larger percentage of protein than any of the grains and for this reason is a very good and economical food. Of ground feeds and by-products, linseed oil meal, gluten meal and meat scraps will be found to contain a large percentage of protein and fat. Other desirable ground feeds and by-products are wheat bran, wheat middlings, corn meal, alfalfa meal, and skim milk. Green alfalfa, green red clover, mangels (or beets), rye forage, cabbage and rape are among the most desirable vegetable foods.

The great egg yield obtained by C. H. Wykoff, a New York state breeder of White Leghorns, has provoked extended comment. Following is a summary of his feeding methods: All the fowls are fed three times daily. In the morning they are given a ration composed half and half, by weight, of wheat bran and a mixture made of equal quantities, by measure, of oat and corn meal. This is scalded. At noon a little grain, a mixture of oats, buckwheat, and wheat in equal parts, is scattered on the floors lightly to induce the fowls to scratch for exercise. At night they are given all they will eat of the grain ration. Sour skimmed milk forms a daily diet and would easily take the place of meat if it could be obtained in sufficient quantities. As it is every other day each group of sixty fowls receives about one and one-half pounds of

pressed meat. Ground oyster shells are continually accessible. About four and one-half quarts of green food is given daily to each lot, consisting of cabbage, turnips, and beets in winter, grass in spring, and sea kale in summer. Salt is the only condiment fed, stimulating commercial feeds having long ago been abandoned as dangerous. Clean clover hay, chopped fine and mixed with corn meal and steamed, is frequently fed, but only in small quantities, as it is found to be too bulky for the crop.

## CHAPTER XXV

### START WITH A SMALL FLOCK

IN taking up the poultry business boys and girls should remember that there is more actual profit in a small flock well cared for than in a large flock neglected. The idea that seems to be prevalent that a flock of fowls will "shift for themselves" the greater part of the year and return a profit to the owner is a mistaken one. They must be properly cared for every day in the year if they are to be profitable. True, they will pick up the greater part of their living on the range in the summer, but at the same time they must be supplied with the necessities the range does not afford. It must be remembered that the hen in her native state laid but a couple of dozen eggs a year, not enough to pay for her keeping under present conditions. That was when she was "shifting for herself." Under ordinary conditions as we find them today, the hen must lay from three to five dozen eggs to counterbalance the cost of her keeping for one year. All that she lays above that number can be counted as profit.

The beginner in poultry raising should bear in mind that the success of the venture depends to a great degree upon his own ability and efforts. He would not

expect to make a success of any other business without first fitting himself for the task and then putting his best efforts into it, and he should not expect to do so with poultry raising. There are a lot of things for him to learn, though he may not realize it, and no one can tell him all he ought to know. He must to a certain extent "work out his own salvation." If he is energetic, studious and observing, he will soon find himself in a position to keep poultry at a good profit, and in the course of time, he will have no trouble in making a "comfortable living" from his hens.

Having made a success of keeping a small flock, a person can safely increase it to four or five times the number, providing he has the time and inclination to care for a larger flock. But even now he should proceed cautiously for it does not necessarily follow that because a man can make a nice profit from sixty or seventy hens, he can make a proportionately greater profit from a thousand hens. In fact, he may fail entirely and keep the larger flock at a positive loss. It is the same in all commercial pursuits. Because a merchant makes a success of a little corner dry goods store is no proof that he is fitted to take charge of a large department store and make a success of the business. Caution is to be advised all along the line.

As to the amount of capital required, this, of course, depends upon the kind and size of the buildings that are to be erected, the kind of equipment that is to be installed and the kind of stock purchased. It is not necessary that the buildings be elaborate, but so con-

structed as to house the fowls comfortably and protect them from the cold and wet.

My advice to the beginner is to get good, pure-bred stock for a foundation, whether he is going to breed for "fancy" points or principally for the market. It has been proven time and again that pure-bred stock is the most profitable from a commercial point of view, and the largest and most successful commercial poultry plants in this country are today stocked with poultry of some standard variety. It costs a little more to start with pure-breds, but it is a profitable investment in the end. The birds that are to be marketed mature more uniformly and make a nice appearance when dressed and placed on sale. Consequently the producer can command a little premium over current market prices for them. More eggs will be secured from a flock of this kind than from a promiscuous flock of mongrels, and the eggs will be uniform in color and size, they, too, making a nice appearance and commanding a little more than a mixed lot. While it costs a little more to start with pure-bred stock, the extra expense stops right there, for it costs no more to raise pure-bred than mongrel chicks.

If a boy has but limited capital, I would advise him to build a small poultry house and get a small flock of fowls as a starter. He can build a house, say 12 x 12 feet for \$40, and this house will accommodate from sixty to seventy hens nicely, divided into two or three flocks. By the end of the first year he will have acquired a fund of experience and knowledge that will

fit him for bigger things if he wants to increase the capacity of his plant, and he will be in shape to work intelligently.

Size and good breeding in the males tell favorably in building up a flock. By persisting in the work of selecting vigorous and uniform pullets, and breeding for definite results, poultry owners will soon notice an improvement in the number of eggs as well as in the output of meat. To add a pound to the weight of each chicken and increase the average of egg production two or three dozen means doubling the profits.

One of the considerations in managing chickens is that males should not be allowed to run with hens which are producing eggs for market. Infertile eggs keep best and are desired by all critical buyers. Then as the males are to be used only on the finest breeding pullets, it stands to reason that a flock will improve. Inferior hens are cut out from the breeding pens altogether, and in a short time the whole flock will show the good effects of careful selection.

Spring, the natural breeding season, is the best time to hatch strong, hardy chicks. The hens, at this season, are in prime condition and produce a greater per cent of vigorous chicks than at any other period of the year. It being the natural mating season, all the energies of the fowls are bent toward the production of young. Therefore, the breeders should be so handled as to retard laying until spring.

The fowl that lays all winter has too great a drain on her productive organs to be in condition to lay

strongly fertile eggs for hatching when spring comes. Those of her eggs which prove fertile may possess weak germs.

Eggs for hatching should never be saved from a hen that is sluggish and hangs around the roost in a sleepy and inactive fashion. The hardy types which lay best are preferable for breeding purposes. These are the ones with full crops, red combs and bright eyes and the first to leave the roost in the morning. They roam long distances in search of food, and are among the last to go to roost at night.

While with Leghorns and other small breeds twenty females can safely be mated with one male bird, in managing the heavier breeds fifteen hens or less should be used in order to insure fertile eggs and special vigor. It is best to limit still more the number of females to be bred to old male birds.

Grocers and commission merchants say that one of their principal difficulties in handling country produce is the unsatisfactory condition of vast quantities of eggs which they receive. It is not merely this lack of uniformity that is complained of but that many farmers are careless in regard to the prompt collection or shipment of eggs.

It has been pointed out by dealers and by officials of the agricultural department at Washington that this carelessness on the part of persons shipping eggs to the large markets causes a loss of many millions of dollars annually. For one thing, farmers get less for their eggs than they would if the product was guaran-

teed as to freshness and had an appearance of uniformity. In the next place, dealers and consumers would be saved a great deal of vexatious loss if they could depend on the quality of the eggs which they bought.

As a majority of poultry owners desire first of all to make money I would urge young people who are engaging in the business to give a little attention to this matter of supplying produce in a reliable and satisfactory way. Tasty packages of any kind of farm commodities will sell at a premium over ordinary stuff. To place the poultry business on a paying basis is not beyond the capacity of any intelligent boy or girl, either in the suburbs or on a farm. A reputation for supplying strictly fresh eggs can soon be established if one is determined to gain this distinction, and it does not require more than one season's effort to get the much-desired uniformity.

Having secured a flock of healthy, contented chickens, of some good strain in a recognized breed, there will be little trouble about lack of uniformity in eggs. The product will gradually become uniform in size and color by following this course of management. The selection of the best pullets from year to year is just about as important as the breeding to one particular strain.

It does not matter at all whether the eggs are white or brown. There is a ready sale for both kinds, but they must not be mixed. It has come about that drug stores use enormous quantities of eggs at their soda

fountains, and these buyers, like all others, dislike very much to have them in different sizes and colors displayed before their customers. Clubs and hotels are equally particular, because this lack of uniformity shows a carelessness or indifference on the part of poultry owners.

A lot of uniform eggs bearing that exquisite bloom that goes with them when they are fresh will go far toward making a reputation for the producer. If one lot follows another without great variation, the poultry owner is in a position before long to charge special rates for his goods. Therefore the gain to the farmer or poultryman is immediate, and if all owners would give strict attention to this question they would be putting money in their pockets by so doing.

Not only do poultry owners make money from this striving for uniformity in eggs, but they are steadily building up flocks of chickens that will pay in another way. When an owner begins to clear profits liberally because his eggs and poultry meat are extra nice he finds a demand for all the pullets and cockerels that he can spare. Other people wish them for breeding purposes, as they also are aiming for the best results.

When poultrymen have followed this plan for one or two seasons they can fix a regular price for everything they have to sell at a rate much above that obtained by those who pursue slipshod methods. Thus there is a strong inducement at every turn to handle poultry intelligently, and according to business prin-

ciples. Uniformity in the flock gives uniformity in the eggs and creates a demand for breeding fowls.

Egg production is not always the most profitable part of the poultry industry. There are various sources of profit. The first is to supply nice, large, juicy broilers which will weigh a pound and a half to two pounds at the age of two months. These sell for almost unbelievably high prices, where one has the reputation for good goods.

The next point is the sale of good breeding fowls, both males and females. An owner who has earned a reputation for having a money-making flock can frequently sell individual birds for from \$10 to \$50 — sometimes as high as \$100 or even \$200.

If the business is worth engaging in at all, it is worth handling right.

## CHAPTER XXVI

### SQUAB RAISING AS A BUSINESS

A GOOD income may be secured by raising squabs. The best variety of pigeons for squab raising is the "straight" Homer. These birds are large, active and healthy. Their eggs are seldom infertile and they are of a quiet disposition when properly mated.

A very important detail in squab raising is the proper mating of the flock. A mating house fitted with nest boxes is necessary whether there are many or only a few birds. They should be kept here until they begin to carry material to build nests, when they may be placed in the permanent breeding house.

It is advisable to keep a record of each bird, sex, color and other distinguishing marks. A breeding bird should be banded with a number; thus the record will show its sex and it can be again mated if anything happens to its former partner.

The six principal feeds are sifted cracked corn, Canada peas, wheat, German millet, Kafir corn and hemp. About a peck of clean sand should be spread evenly on the floor of each pen. A small box one-third full of table salt, a second with cracked oyster shells, pigeon size, and a third with ground charcoal

about as fine as ground coffee, should be placed within reach of the birds and replenished weekly, cleaning out the boxes each time. The salt is absolutely essential for the health of the pigeons.

Regularity as to feeding time should be strictly observed. In summer the morning feed should be given at 6.30 and in winter at 7.30. In the afternoon feed the birds at 4 o'clock in summer and 3 in winter. The birds and their young should have ample time to feed before nightfall. Never feed out of doors at any season. Some of the feeds mentioned are quite cheap, but just because of this do not give larger rations of that particular sort in order to save by it. Too much wheat will tend to make the squabs skinny and dark. The pigeons need a variety of feed. If the parent bird is improperly fed the squabs are likely to die in the nest. Unlike a tiny chick, the squab cannot run about and help itself and, therefore, it depends entirely on what the mother bird brings it. After the first five days it feeds on grain picked up by the parent.

A generous supply of fresh water for drinking purposes should be supplied. The flock should be watered before the morning supply of feed is given. One fountain on the floor of each pen is sufficient and should be thoroughly cleaned out each morning. They should then be filled with fresh water which will last all day. However, during the heated spell a fresh supply of water in the afternoon would be welcomed by the birds.

Other and shallower tubs should be provided for

bathing purposes as the birds frequently use these and enjoy them. These tubs should be of galvanized iron or zinc, 3 inches deep and 30 inches square. After the birds have bathed the tubs should be emptied and turned upside down. If available, a trough with running water is best if raising pigeons on a large scale.

It is very essential that the nest boxes and pens be cleaned often and regularly except in the case of a freshly made nest containing eggs or young squabs. This can be left until the next cleaning day. Pigeon houses should be lime-washed before occupancy. Crude, dark carbolic acid, a teaspoonful to two gallons of wash, will serve to repel lice. Whitewashing must be repeated once a year.

Squabs should be killed before they get so large that they leave the nest. Eight pounds to the dozen is considered standard size. This weight is usually attained in four weeks. A regular shipping day must be set aside. To insure empty crops the squabs ought to be caught before the morning feed is distributed.

A disease frequently encountered is known as "going light," and is characterized by moping and drooping of the bird. Diarrhea is often the first symptom and this may be checked by a dose of sweet-fern tea. If the discharge is slimy a dropperful of cod liver oil and creosote night and morning will bring about improvement. One dram of creosote to 2 ounces of the oil is the proper proportion. If the disease has reached the stage where the bird is gasping, it is better to kill it off as the case is then hopeless. It is gen-

erally in moulting season that this disease manifests itself. It is caused from allowing feed to lie on the ground until sour or because the grain is unsound to begin with.

Roup is contagious and requires careful treatment. It is evidenced by a discharge from the nostrils of the bird. The nostrils should be carefully washed and a few drops of camphorated oil put in each of them. This can be done with a small oil can. Another remedy is two drops of kerosene oil in the nostrils and one or two in the mouth. The birds should be carefully watched until cured. In any case whether contagious or not, it is safer to separate the ailing birds from the healthy flock until they are entirely well.

Vertigo is incurable. A bird may be inflicted with this disease and yet live a couple of years. It will turn its head over its shoulder, seem dizzy and frequently fall down. It is better for the flock if one of this sort is immediately eliminated.

Canker is indicated by a discharge of cheesy matter from the mouth of the bird. Swab the parts affected with a solution of bluestone applied with a small camel's hair brush. This should be done for two days and then the canker removed with the aid of a match stem. Care should be taken not to draw blood. When the disease has been unnoticed until too far gone, unless the bird is quite valuable it is better to kill it.

During the very long and severe winter of 1903-04 many squab breeders met with heavy losses by eggs

becoming chilled in nests and squabs dying shortly after being hatched.

To show the extent of these losses, the writer will cite a few instances which came under his immediate notice: One breeder with 500 pairs in the month of January, 1904, lost 148 eggs and 64 squabs, marketing only 166 squabs. A second flock of the same size suffered a loss of 106 eggs and squabs during a single week in February, with very heavy losses for several previous weeks. In a third flock of the same number of birds, the owner marketed as few as 24 squabs in a week and seldom had more than 40. Yet from a fourth flock of the same size there were sent to market in January, 1904, 303 squabs, and the losses from chilled eggs and dead squabs amounted to only 16. The net returns for the squabs sold were 90 cents a pair. Now, comparing this result with that in the first case above mentioned, which showed the best results of the three, we have the following:

Fourth flock, 303 squabs, at 90 cents a pair, netted	\$136.35
First flock, 166 squabs, at 90 cents a pair, netted..	74.70
Loss sustained .....	\$ 61.65

With feed bills for each of these flocks approximating \$18 per week, it can be seen that 20 pairs of squabs at 90 cents a pair were necessary to meet that item of expense. The first breeder mentioned barely reached that number, and the second and third fell short.

Good management requires that the cause of such

losses be most diligently sought. Luck has nothing to do with the question. The breeder must closely examine his coops, for the cause exists there. Without the inspection of any given coop thus afflicted it is not possible to point out the exact cause of the trouble, but the writer confidently believes that in nine out of every ten cases the losses can be traced to one of the following causes, or a combination of them: (1) A fighting cock bird; (2) birds not mated; (3) lack of vitality in the breeding stock; (4) the presence of mice in the breeding quarters.

In spite of all of these possible losses, with the right kind of stock, careful attention and proper management the pigeon business can be made to pay. One large pigeon house is better than several small ones, but 250 pairs in one house should be the limit. A room 10x20 feet will accommodate 50 pairs comfortably. For a beginner who desires to start with 25 pairs or less, temporary structures or buildings which are already erected, will do until experience regarding the peculiarities of the birds and a practical knowledge of how to manage them have been gained. Then it is safe to branch out in the business.

Pigeons live in pairs, and a well-selected breeding pair will produce a dozen squabs or more every year. The squab is a young pigeon not ready to leave the nest. It is considered a delicacy and sells at the rate of \$3 to \$5 a dozen. There is a constant demand and the prices allow for a large profit. It costs on an average about 60 cents a year to feed a working pair of

pigeons. One conservative and reliable breeder gives this ratio of estimates: It will cost \$10 a week to feed 1,000 pairs of pigeons, and they ought to produce ten dozen squabs a week, which would average \$4 a dozen, sold in market, making \$40 per week. Deducting the \$10 expense leaves a weekly income of \$30, or \$1,560 a year, which would be double that amount if you had a select family trade and got the benefit of the prices they pay.

Present city quotations run as follows: Prime white squabs, ten pounds to the dozen, \$4.75; nine pounds, \$4.25; eight pounds, \$4; seven pounds, \$3.75; six pounds, \$3.50. This is what the commission men pay, but you inquire at first-class hotels, clubs and homes of the rich and you will find that these middlemen sell at a profit of 100 per cent. The conclusion is that you should sell direct to the consumer.

Proper selection in mating and a wise choice of birds for your breeding loft mean everything. By selecting those birds that are the most prolific breeders you can increase your squab product fully one-fourth. Don't fancy there will be nothing to do; there will be just so much work to be performed each morning. For a small flock, fifteen minutes each day will suffice, but on "cleaning-up" days a loft of a few hundred birds will take all day to put things in proper order. Beside the work there will be about so much time to be spent each day in watching the birds to see which are coming up to the standard and which are drones.

There must be two nests for every working pair of

pigeons, as the mother bird often begins laying again before the last pair of squabs is out of the nest. In this case she turns the squabs over to the father bird, who furnishes them with food. In the meantime the mother bird is occupying the other nest, and probably has hatched another pair of squabs before the first ones are fully fledged. The nests are made by putting tiers of shelves across the sides of the loft, or squab house, and dividing these shelves into one-foot spaces.

## CHAPTER XXVII

### PROFIT IN TRAPPING

THERE is an unlimited amount of healthful sport and considerable profit in trapping fur-bearing animals. The business is never overdone and prices have been steadily rising for years.

Boys who live in the country have the advantage in this line of activity, but the sport may be enjoyed by town youths also in a limited way. Village boys often find it possible to carry on a trapping business in forests and along creeks not far from home.

Don't make the mistake of thinking that the wild animals in the old settled states are of inferior value. A prominent wholesale fur dealer recently said that the best and most generally satisfactory furs he purchases come from Illinois, Iowa, Missouri, Wisconsin, Michigan and other old settled middle states.

For twenty years nearly all fur bearing animals, with the possible exception of skunks, have declined in numbers. With this has come a corresponding increase in values. Raw mink skins were quoted at 50 to 90 cents each no longer than ten years ago; skunk, 50 to 75 cents, and muskrat even as low as 10 cents for poor ones. In the last two or three years skunk skins have brought as high as \$4 to \$4.50 each to the

country trapper and mink even more. Considering the period from 1892 to 1911, in comparison with the years from 1882 to 1891, some common raw furs show the following increases in value: Mink, 300 per cent; skunk, 150 per cent; muskrat, 230 per cent; marten, 580 per cent; red fox, 100 per cent.

The decrease in the supply of fur-bearers is not entirely responsible for the advance in price. Many cheap furs have been popularized, and more people are wearing fur garments than ever before. Some common furs are also misnamed, making them more attractive to the casual buyer. Skunk, for instance, is seldom sold under its true name, and muskrat frequently masquerades as brook mink.

Judgment and restraint should be used in the destruction of these animals except, of course, in individual cases where the poultry yard is being attacked. Unless the case is urgent it is better business sense to destroy the animals when their fur is prime and get the value out of it than to kill them during the summer or any other time when the fur is valueless.

Always trap your fur-bearers when possible. The common steel trap is cheap and effective, and the increased value of the pelts of one or two trapped skunks, for instance, over the value of animals killed with a shotgun, will pay for a number of steel traps. Skunk is usually the first fur to become prime, and is one of the first to lose its luster. Late autumn and early winter, therefore, is the approved time for taking this animal.

Where shall I look for fur-bearing animals? That is a question which bothers every beginner. As a general rule, I would say, search along creeks, lakes, ponds, marshes, near woods and in weed patches. Generally speaking, rough, stony country furnishes the best place for the dens of those animals which are not aquatic.

The skunk is fond of hilly country, especially if full of stones, brush, weeds and wood. Its dens are usually found on the tops of hills. In the prairie sections it makes its home in weed patches, along hedges, around old stacks of straw or hay, and under deserted houses and barns. The civet cat may be looked for in the same places. It very often has its burrow under board piles, around stone piles, under abandoned walks and similar haunts. In fact, both of these fur bearers have been known to live under houses that were occupied.

The raccoon is never found far from water. It prefers a wooded country. Frequently its dens are found in large hollow trees. The opossum, too, is fond of trees, and the thicker they are the better.

A Minnesota farmer relates an interesting experience in raising mink. As he gives some details which an amateur trapper or breeder needs to know, his statement is quoted:

"I have been in the business of fur farming since April, 1910, when I caught a female mink in a trap and found that she would soon become a mother. She brought me six little ones about the size of your

little finger and bare as a young born mouse. It took them about four weeks to get their eyes open. After that they grew very rapidly. I feed my minks fresh fish, birds and scraps from the butcher shop, but never salt food. The same year I caught 68 more mink, out of which I saved 18 female and eight males, making a total breeding pen of 23 females. I kept only two males which I turned in with the females. They began fighting at once with such bad results that they killed three females. The next year I tried a similar experiment, keeping 18 females to one male. That year produced only one young mink.

“The next year I paired them with actual results, each female producing six young ones. The mother and her young may be kept together until the next breeding season, but the males should be separated. The male is much larger than the female, and I have found it best to keep each in a little trap box which can easily be moved from one pen to another.

“A nest box 6 by 4 by 12 feet is all the room a female mink requires to bring up her brood. This should be kept on the outside of the pen so that one can get in occasionally to chase the animals out and see what progress they are making, and also clean the box. I sold nine pairs to a man in Pine River for \$225. Minks are very interesting to work with. They will come out and feed and play or bathe when the keeper is around and furnish much entertainment.”

The raccoon and opossum are harder to take in traps than either skunk, civet cat or muskrat. The

former makes its home wherever there is timber, and usually not far from water. The opossum also likes the woods, thick and filled with underbrush. In this respect the animals treated in this chapter are similar, although the 'coon is far more important to the fur trade, considering the value of each pelt, than the 'possum. The last-named animal, because it ranges so far south is known as "cheap fur," for the reason that most of the skins — perhaps I should have said a large per cent of them — do not prime at all where the fur season is not cold. It might also be interesting to the trapper to know that within the last few years the pelt of the opossum has enjoyed a greater demand among manufacturers, due to the fact that it fills a demand for a serviceable fur which can be readily dyed, at a small cost.

When trapping the raccoon, use nothing smaller than the No. 1 1-2 trap. Many trappers have taken the animals in smaller sizes, but in the majority of cases the fur bearer will escape from sets made with them. Remember, also that fixed fastenings, such as stakes, are not best for this strong animal, and its sharp teeth have been known to sever a common pine stick to which a trap has been fastened. I would advise all trappers to fasten their sets to rocks weighing enough so that the animals when caught could not drag them off, yet light enough not to give them a straight pull.

With the opossum, it is different. Almost anything

can be used for a fastening, provided it is large enough to hold any kind of an animal at all.

The raccoon, like its larger brother, the bear, seems to have an appetite which is never satisfied. It is very fond of sweets, and can be attracted by almost anything, such as corn, apples, fish, clams, honey and even jam. Both these fur bearers are susceptible to almost any good patent lure, for the reason that the sense of smell enables them to locate the scent for long distances.

Some trappers, if the weather is very warm, salt such skins as the skunk, raccoon and opossum, to save them from spoiling. This method should be followed only in extreme cases, as salted skins bring lower prices than those cured otherwise.

Unless the grease and fat are removed from a skin, it is liable to taint, or become grease burned. Furs in this condition are worth little or nothing.

After a pelt has been removed, a steel stretcher is best for curing it, since the air circulates more freely through the hair. If steel stretchers are not employed, use forms made of thin boards. Fashion these of a size to fit the pelt and have the edges rounded so the skin will not be injured. Use tacks to keep the skin in place.

Never dry furs over a fire or in the sun. Place them in a cool, shady place where it is not damp.

Before going into the business of trapping it would be well to write to one or two fur dealers for prices

and any information they are disposed to give. Many of them have circulars which are useful to amateurs, and all of them are ready to quote prices and tell what kind of pelts they prefer.

## CHAPTER XXVIII

### ANGORA GOAT RAISING

YOUNG people living on farms will do well to give some attention to the raising of Angora goats. These animals are hardy and profitable. They will thrive on rough bits of ground and help to clear up a field of weeds or underbrush. It is not necessary to devote a great deal of fine pasture land to them. The Angora fleece has high value in the market. There is also money to be made in selling well bred young animals.

The raising of Angora goats in the United States is now a demonstrated success. The industry is indeed so well established here that growers need not be inconvenienced by the action of South Africa in prohibiting the exportation of Angoras, for the quantity of good blood in this country is already sufficient to meet all requirements. In the opinion of experts the best American fleeces now equal any grown in South Africa or Asia Minor, the original home of the Angora.

Although nearly every state in the Union now possesses its flocks, the Southwest and the Northwest are especially well adapted to the industry, in particular the large areas recently logged-off in the Northwest. There the Angora not only thrives himself but helps

to clear away the brush which, if allowed to grow unchecked, might easily become a dangerous fire trap. Thus it is often said that the Angora works and pays for its board at the same time.

It is paying more and more, for the value of the fleece or mohair is increasing steadily. Formerly the use of mohair depended so largely upon the prevailing fashion that its price varied widely from year to year. This condition, however, is rapidly changing as new uses for mohair are continually found, from automobile tops and table covers to dress goods and curled false hair, and to-day the grower is assured of a reasonably steady market. The price of course varies with the quality, the very best fleeces bringing on an average from 42 to 55 cents a pound. The weight of a fleece has a very wide range, but in 1909 the average for Oregon was found to be 3.7 pounds and for Texas 1.85. On account of the greater heat, however, and the damage of shedding, Angoras in the Southwest are frequently shorn twice a year—a fact which must be taken into consideration in all calculations.

This practice of clipping twice a year is in many ways a drawback to the industry since it tends to lower the average grade of American mohair. Mohair of the highest quality can be and is grown in this country, but the average is not considered by dealers to be quite as good as the foreign. About 2,000,000 pounds are annually imported. Ordinarily this is blended and spun with the domestic product. Six inches is the shortest length of fleece usually desired and, because

of shearing twice a year, much Texas and New Mexico mohair falls below this standard. Where the fleece is allowed to grow for 12 months, the average length is 10 inches and in the best flocks it is not unusual to get 15 to 20 inches. Romeo, the sweepstakes buck at the El Paso show in 1910, is an example of what is possible. His fleece weighed 18 pounds, measured  $20\frac{3}{4}$  inches in length, and sold for \$115. Such fleece is not of course the product of ordinary commercial conditions. It implies a considerable amount of care and personal attention.

There is much to be gained by careful breeding. Half-bred goats scarcely shear enough to pay for the shearing; three-fourths-bred goats shear 1 to  $1\frac{1}{2}$  pounds, worth 15 to 20 cents; seven-eighths-bred goats shear 2 to 3 pounds, worth 20 to 30 cents; fifteen-sixteenths-bred goats shear 3 to 5 pounds, worth 30 to 40 cents.

The following instances are given of remarkable mohair yields and prices: Among the Angora goats exhibited at the Louisiana Purchase Exposition in October, 1904, were two goats which, because of the long fleeces that they carried, attracted more attention than any others of the prize winners. One of these was a doe owned by Mrs. M. Armer, of New Mexico; the other, Kingston Lad, was the property of Tom Wedgwood, also of New Mexico.

Mrs. Armer's doe sheared 14 pounds. The length of the staple is not stated, but the longest of it was about 18 inches. The mohair was sent to a purchaser

in New York City who fixes his own price upon long mohair. He buys all he can find in this country and imports largely besides. He uses the hair in the manufacture of various things, such as wigs, switches, nets, ornaments, flowers, etc. The following was his payment to Mrs. Armer:

2 pounds, at \$5 .....	\$10.00
7 pounds, at \$4 .....	28.00
5 pounds, at \$1 .....	5.00
Total .....	\$43.00

Mr. Wedgwood's buck sheared 16 pounds. Ten pounds of this he sold to the gentleman already referred to at \$5 a pound. The owner says he gave away ringlets from the buck at St. Louis to the amount of 2 pounds at least. Most of the fleece was over 20 inches long.

In this connection it is interesting to note that a considerable number of persons in various parts of the country have sold whatever very long mohair they raised for very high prices — all of it to one man. For instance, William Riddell & Sons, of Oregon, sold 25 pounds for \$42, as follows:

3 pounds, at \$3 .....	\$ 9.00
5 pounds, at \$2 .....	10.00
15 pounds, at \$1.50 .....	22.50
2 pounds, at 25 cents (waste) .....	.50
Total .....	\$42.00

The Northern Angora Goat and Live Stock Company, of Montana, on one occasion received from the

dealer in long mohair \$6.50 a pound for 42 pounds, a total of \$273. This is the highest price on record and indicates that the mohair was remarkably long and fine.

It seems that there would be a limited demand for mohair for the purposes for which this very long staple is used. So long as there is a demand for a particular quality of mohair at such great prices the breeders will be wise if they endeavor to supply it.

Besides the mohair there grows upon the Angora goat coarse, chalky white, stiff, straight hair, varying in length from half an inch to 4 inches, technically known as "kemp." It is generally believed that kemp is a relic of the common goat blood in the Angora, as it is a matter of history that the Angora flocks of the United States, as well as those of Asia Minor and South Africa, have been largely increased by crossing upon does of common blood.

The reason why kemp is objectionable is that it will not take the dyes used for mohair; the only effect of the dyes is slightly to discolor the kemp. There are dyes, it is true, which act upon kemp, but they have no effect upon mohair; and the best efforts put forth have not yet resulted in a mixture of dyes that will act satisfactorily upon both mohair and kemp at the same time.

Kemp appears in its worst phase in pluses, where every individual hair shows prominently. Its presence here is much more pronounced than when in the fleece, where it is nearly of the same color as the mohair. It is therefore of great importance that this

objectionable substance should be removed from the fleeces. If any kemp should escape the eye and be woven into the plush fabric it would not be discovered until the fabric came from the dye, for it must be remembered that mohair pluses are woven "in the white," and afterwards (perhaps several months or a year) are dyed according to instructions to fill orders. Kemp, at this stage of the process, becomes an expensive proposition, for skillful hands must burl out every fiber of it as well as every other bit of foreign substance. In the cheaper pluses, such as are largely used in street cars, there is a considerable quantity of kemp. Much of this material may also be used without detriment in the manufacture of rugs.

## CHAPTER XXIX

### BELGIAN HARES AND DOMESTIC RABBITS

YOUNG people who wish to raise Belgian hares or domestic rabbits for market do not need a very expensive equipment or much room. If they have a good-sized lot which may be fenced in with woven wire they may easily establish a good working plant. A boy or girl living in the country has the best chance to do a large business, but this need not deter young people in town from earning a nice little sum every year.

Belgian hares are more profitable than domestic rabbits, for there is a general demand for them as pets, and a fine specimen will sell at from \$5 to \$10, but they are more commonly raised for meat. A good, healthy doe will raise five litters in one year, and they will average about six in each litter. The market calls for young rabbits at from six to ten weeks, and a fair price is 60 cents each. The cost of food is so little that a large profit remains. There is nothing to hinder a really fine business in this line for any intelligent youth who has a little ground space and a few dollars for fencing and housing.

Belgian hare meat is tender and palatable, and it is easy to work up a private trade for it. Families pay

retail prices, and this gives rather more profit than when the product is sold entirely to restaurants or commission men. A rabbit that will bring 60 cents in market does not consume more than 10 to 15 cents' worth of food. A mixture of oats and bran makes a good ration for rabbits. In summer the animals will pick up a great deal of their feed in a grass plot, especially if there is considerable clover, either white or red. In winter it is necessary to provide a little clover for the animals.

Keep the hutches nice and clean. After sprinkling a little lime on the floor put in some wheat straw to catch the droppings. Sometimes a layer of sawdust is put in with the wheat straw on top, which makes them less difficult to keep clean. In the summer, when the weather is very warm, the hutches and yards should be sprinkled with a good "stock dip," and this is a very good remedy when there are hares with a contagious disease in the herd.

Beginners in hare culture should not make the mistake of buying culls simply because they are cheap. It is better to pay \$15 for a trio of thoroughbred hares than even to pay transportation on culls. Purchase your breeders from some reliable fancier and breeder and pay him a handsome price. By so doing you will be able to compete with your neighbor. After you have purchased foundation stock you can raise good hares just as cheaply as culls and the results are far more satisfactory.

You wish to keep rabbits; or you know some friend

who does? Well, here are the plans of a strong and thoroughly serviceable hutch which was made some years ago out of a packing case, and which has safely and comfortably housed my rabbits ever since.

I secured a good, sound packing box, measuring roughly about four feet by two feet by two feet, and made of wood three-quarters inch thick. The ends were about one inch. The top I removed and laid aside for use in other ways. The case was then thoroughly overhauled and the edges of the open top planed true. The case was of course intended to stand on its side, the top forming the front.

As a rabbit hutch should never stand with the bottom on the ground, the next thing was to provide legs. For these I got four lengths of wood one and one-half inches square and thirty inches long, and screwed them (from the inside) to the ends. This raised the hutch about six inches from the ground. The top ends of the legs were gently rounded for a finish.

The hutch is divided into two parts, a day house and a night shelter. A fillet two inches wide and one inch thick was nailed in position and a partition was made up from the waste wood of the packing case lid. A suitable opening was cut in this partition to form a doorway, and several ventilating holes, one inch in diameter, were bored in the back and end of the night shelter a few inches from the top.

The front, with its door and its hinged frame, had then to be tackled. The fillet was so placed that the

door came out one foot six inches wide, the height being one foot eleven inches. The door, like the partition, was made from the packing case top, four four and one-half inch boards being joined together with two back battens. It was hinged at the right-hand side, a strong hook and eye being fixed at the left, and a stop inside being provided to prevent the door opening inwards. The door opens *within* the edges of the hutch, not over them.

The hinged frame of the day nursery came out at two feet two inches long by one foot eleven inches high. The frame itself was simply put together with four lengths of one and one-half inches by one inch stuff, the corners being halved and firmly screwed. For the bars (nine in number) one-half inch dwelling was used, holes being drilled in the top and bottom of framing to receive them.

The barred frame was hinged at the top, hooks and eyes securing it at the foot. The top of the hutch was covered with tarred felt as a protection from rain.

## CHAPTER XXX

### CORN AND PIG CLUBS

CORN and pig clubs for boys of school age are being promoted by the United States Department of Agriculture, the state agricultural colleges and other institutions. Their objects are to stimulate interest in rural life and bring about an increased and better production of grain and live stock.

These organizations are on a basis similar to that of the girls' garden and canning clubs. There is a considerable expenditure in both lines of activity, mainly in the way of educating the young people. States, counties and schools are giving substantial prizes. Boys and girls in nearly every community have an opportunity to become members of these clubs and gain the benefit of much valuable training, to say nothing of their acreage earnings and prizes.

School boys are of the age suitable for club work and are surrounded by the conditions most likely to lead to its successful completion. Home project work is coming to be looked on as part of the regular school program and as a supplement to the usual routine of school lessons.

The proper cultivation of corn is one of the most

important aims of the agricultural world to-day. The best methods include the selection and testing of seed, crop rotation, the building up of the soil, weed repression, mulching, etc. While the first purpose of corn clubs is crop production, it does not follow that all other character building and habit forming agencies are left out of the consideration. It is clearly the intention to reach the boy and endeavor through instruction and direction in contests and friendly rivalry to encourage the education of the head, heart and hands. When corn growing is on its highest plane, meat animals offer the best market for the crop, and there should be more interest in securing good yields of corn as well as in fattening live stock.

More study of rations is needed, including the use of a forage crop and more sanitary feeding, if profits are to become what they should be. The work of growing corn and raising pigs belong together and one in no way interferes with the other. Increased interest in pig raising will result in better management of the soil.

Boys should learn to handle stock, for usually they love that kind of work. The general care of hogs and other domestic animals is not beyond the capacity of school children above the age of nine years. This includes proper methods of feeding and housing, together with the treatment of such common ailments as the animals are subject to. Any bright youth can learn to keep stables and pens clean, to provide pure drinking water and to give a proper variety of feed.

Such work leads up to a close knowledge of financial management. A boy who likes animals and is accustomed to taking care of them is pretty sure to become a successful farmer and a good citizen generally.

In all farm operations an acre is considered the basis of work. All estimates in the business of farming are by the acre. It is therefore advisable that the boys' corn-club work maintain a uniformity throughout the states in taking an acre as a basis of corn-club work. This does not interfere with a larger acreage. In fact, club members are urged to farm more land wherever possible.

The object of the work on the 1 acre, however, is to limit the work to a piece of land that can be properly prepared, fertilized, and managed during the growing season. It must be distinctly understood that the corn-club acre is a *demonstration acre* and has for its ultimate aim the demonstration of the values of better methods of corn culture and to make the boy feel that he is doing a part of the world's work. Fractional acreage for corn-club work is not encouraged. In the case of a special demand being made for half-acre plats in certain localities where the acreage is limited, this work is classified as a "special contest" and not denominated as regular club work. Special premiums should be provided for the half-acre contest work, and contestants of this class will not be in competition with the acre class. The acre should contain 160 square rods, or 4,840 square yards, and should provide for a margin of  $1\frac{1}{2}$  feet on the four sides of the acre plat

between the first row of corn and the marginal lines of the acre.

Gather the corn on a dry day and weigh it. Weigh out two lots of 100 pounds each from different parts of the total quantity. Shell each lot and weigh the shelled corn separately. In order to find the percentage of shelled corn divide by 2 the sum of the two weights thus obtained. Then multiply the total weight of all the corn gathered by this average percentage and divide by 56. This will give the number of bushels of shelled corn.

Every boy whose yield would entitle him to close competition for the prize trip to Washington, D. C., and the champion position in county, district, or state should submit a sample of his grain for the moisture test, as provided by the following rule:

The corn must be weighed in the presence of two disinterested witnesses, who shall immediately after weighing take a fair sample of 1 quart of shelled corn (1 pint from each sample lot weighed), place this sample in the moisture-tight package at once, and mail it in this container to the United States Department of Agriculture, Office of Grain Standardization, Washington, D. C., or to one of the grain-standardization laboratories outside of Washington designated by the state agent in charge of the club work. Moisture-tight mailing supplies will be furnished by the United States Department of Agriculture upon application from the state leader or club members. This sample of shelled corn must be accompanied by a certificate

of the total weight and percentage of shelled corn. The moisture test shall be made from this sample, and from the weight and moisture test the percentage of shelled corn will determine the official yield of the club member. Yields are to be calculated to a uniform basis of 12 per cent of moisture. This is about the normal moisture content of old and well-cured corn during the summer months.

The county superintendent of schools and the county agent in charge of field studies and demonstrations are by virtue of their positions considered the special county leaders in the boys' corn-club work and will cooperate with the state leader in field studies and demonstrations and the state agents in charge of club work.

## CHAPTER XXXI

### ARTICLES OF WOODWORK

A WHOLE book would be needed to describe all the useful articles that boys can make in the line of wood-work. I just wish to suggest that this is a great field for money making. Every household needs to have odd jobs of repairing done, and nearly every housekeeper will buy rustic seats, tables, benches, shelves, etc. Just try a little canvassing among your friends, if you are in need of employment, and see how many jobs can be picked up in a few hours.

The boy who devotes himself entirely to a trade may become proficient in that trade, and yet may lack in the general knowledge of doing those common things that are so necessary to the farm and home.

A suggestive list is given containing a number of common articles that have to be made for every home and on every farm, together with a number of processes with which every boy should be familiar. There are localities to which not all of these suggestions may apply, and it will be desirable to add to this list some things that are applicable only to certain local requirements. It is not the purpose to furnish any complete list, but merely to give suggestions as to what may be done.

A start in this line of work may be made with a very few tools. It is not best to buy everything one thinks of. Additions to the list of tools can be made as money is earned and patronage justifies the outlay. Boys need a course in manual training, or at least a little practical training.

#### ARTICLES TO BE MADE

Bread boards.	Gates.
Flour boxes.	Milk stools.
Shelves.	Feed troughs.
Rustic chairs.	Water troughs.
Poultry nests.	Benches.
Hen roosts.	Cupboards.
Chicken coops.	Towel rollers.
Clothes boxes.	Window screens.
Hotbeds.	Door screens.
Coldframes.	Bookcases.
Wall pockets.	Storage chests.
Wall pegs.	Garden trellis.
Kindling boxes.	Flower stands.
Garden seats.	Stepladders.
Footstools.	

#### PROCESSES TO BE LEARNED

Setting posts.	Mending with rivets.
Building fence.	Caring for farm and other tools.
Planting trees.	
Oiling harness.	Pruning trees.
Mending harness.	Protecting trees.

Putting handles in tools.	Mixing paint and glazing.
Nailing on horseshoes.	Building roads.
Sharpening plows.	Putting culverts in roads.
Mixing mortar.	Gluing.
Laying cement walk.	Soldering.
Laying stone wall.	Harnessing, hitching, and unhitching.
Hanging doors.	
Setting locks.	

## WOODWORKING TOOLS

Two-foot rule.	Auger bits.
Carpenter's steel square.	Brace.
Try-square.	Spokeshave.
T-bevel.	Screw-driver.
Dividers.	Gimlet bits.
Claw hammer.	Countersink.
Plane.	Oilstone.
Marking gauge.	Oil can.
Ripsaw.	Vise.
Crosscut saw.	Bench stop.
Chisel.	Bench hook.
Drawknife.	Miter box.
Mallet.	Carpenter's horse.
Mortise gauge.	Gluepot.

## MASON'S TOOLS

Crowbar.	Mason's brush.
Edger.	Point.
Groover.	Pitching chisel.
Mallet.	Stone ax.

Trowel, mason's.	Trowel, pointing.
Trowel, plastering.	Ladder.

## PAINTER'S TOOLS

Oval brush, No. 8.	Glass cutter.
Varnish brush, 2-inch.	Putty knife.
Varnish brush, 3-inch.	Sash tool, No. 2.
Wall brush, No. 6.	

## BLACKSMITH'S TOOLS

Shoeing hammer.	Ball peen hammer.
Pincers.	Cross peen hammer.
Trimming knife.	Horse rasp.

## CHAPTER XXXII

### FLOWER PLANTING CALENDAR

SOME knowledge of the cultivation of flowers should be counted a necessary part of every young person's education. This becomes doubly important to those who have money earning in view. Boys and girls who have this activity in mind, either for pleasure or profit, will gain something from a study of the following planting schedule:

Achillea — Plant June—October, 12 inches apart: Bloom July—October: Color, white: A perennial, two feet high. The Pearl is a good variety.

Ageratum — Plant indoors March, outdoors May, 6 inches apart: Bloom June—October: Color, blue, white: Annual, grown from seeds or cuttings. Fine for borders. Blues are most popular.

Alyssum (Annual) — Plant May—June, 4 inches apart: Bloom June—October: Color, white: Excellent annual for borders.

Alyssum (Perennial) — Plant June—September, 6 inches apart: Bloom, July—October: Color, yellow: Used for edgings and rock work.

Aquilegia (Columbine) — Plant June 15—September, 8 inches apart: Bloom June—September: Color,

white, yellow, blue, pink: Hardy perennial. Blooms the second year.

Asters (China) — Plant indoors March–April, outdoors May–June, 9 inches apart: Bloom July–October: Color, white, pink, yellow, red, purple, lavender.

Balsam — Plant May, 9 inches apart: Bloom, July–September: Color, red, white, pink, yellow: Annual, to grow in clumps in the sun.

Calendula (Pot marigold) — Plant May–June, 6 inches apart: Bloom June–October: Color, yellow, orange: Easily grown annuals, that self-sow. Fill vacant spots with them.

Calliopsis — Plant May, 6 inches apart: Bloom, July–October: Color, yellow, brown: Showy annuals, good for cutting. Easy to grow, but they like the sun.

Campanula (Canterbury Bells) — Plant June–August, 12 inches apart: Bloom June–August: Color, white, blue, pink: Perennial, blooming the second year.

Celosia (Cockscomb) — Plant indoors April, outdoors May, 6 inches apart: Bloom June–October: Color, white, red, pink, yellow: Annual. Combs may be dried for winter bouquets.

Candytuft — Plant May 15–June, 4 inches apart: Bloom June–October: Color, pink, white, red, purple: Annuals, for beds, borders or to cut. Make successive sowings.

Centaurea (Corn flower) — Plant April, 6 inches

**apart:** Bloom June–October: Color, blue, white, pink: Annual, to grow in masses. Self-sown. Keep flowers picked.

**Chrysanthemum (Annual)** — Plant indoors April, outdoors May, 6 inches apart: Bloom July–October: Color, white, yellow, red: Annuals, for massing at a distance.

**Cobea** — Plant indoors April, 8 inches apart: Bloom July–October: Color, purple: Climbing vine. Plant seeds edgewise.

**Cosmos (Early)** — April indoors April, outdoors May, 12 inches apart: Bloom, September–October: Color, white, pink, red: Tender annuals. Pinch back to make bushy plants.

**Cosmos (Late)** — Plant indoors March–May, outdoors May, 12 inches apart: Bloom September–October: Color, white, pink, orange: Tie to stakes if exposed to winds.

**Dahlia** — Plant March–April indoors, transplant 36 inches apart: Bloom August–October: Color, white, yellow, pink, red: Late started plants give largest flowers.

**Delphinium (Larkspur)** — Plant June–August, 12 inches apart: Bloom July–October: Color, blue yellow, white: Fine tall perennials. Bloom the second year. Blues are best.

**Dianthus (Pinks)** — Plant indoors March–May, outdoors May, 6 inches apart: Bloom July–October: Color, white, red, striped: Perennial, blooming the first year.

*Digitalis* (Foxglove) — Plant July—August, 9 inches apart: Bloom July—August: Color, pink, white, blue: Fine in hardy border. Bloom the second year.

*Eschscholtzia* (California poppy) — Plant May, 4 inches apart: Bloom July—August: Color, yellow, orange: Do not transplant. Foliage is pretty.

*Gaillardia* — Plant indoors April, outdoors May, 6 inches apart: Bloom July—September: Color, yellow, red: Showy annual, for beds.

*Gourds* — Plant indoors March—April, outdoors May, 4 inches apart: Bloom September—October: Fruit bearing: Excellent to hide unsightly objects.

*Four O'clocks* — Plant indoors April, outdoors May, 8 inches apart: Bloom July—September: Color, white, pink: Annuals, for borders or beds.

*Gypsophila* — Plant April indoors, May outdoors, 10 inches apart: Bloom July—September: Color, white: Fine to use in bouquets.

*Helianthus* (Sunflower) — Plant May, 12 inches apart: Bloom July—October: Color, yellow: Make a good screen. Try the new kinds.

*Hollyhock* — Plant March—April indoors, June 15—July outdoors, 15 inches apart: Bloom August—September: Color, white, red, yellow, pink. Perennial. Spray with Bordeaux.

*Kochia* (Summer Cypress) — Plant April, 12 inches apart: No flowers: The foliage turns red in the fall.

**Larkspur** (Annual) — Plant indoors March–April, outdoors May–June, 6 inches apart: Bloom June–September: Color, red, white, blue, pink: Grow in masses. The flowers are good for cutting.

**Lobelia** — Plant indoors April, outdoors May, 4 inches apart: Bloom June–September: Color, blue, white: *Lobelia Erinus* is very popular for low edgings. It is blue. Use manure water for Lobelias.

**Marigold** — Plant indoors April, outdoors May, 6 inches apart: Bloom July–October: Color, brown, red, yellow: Showy, easily-grown annuals.

**Mignonette** — Plant indoors March–April, outdoors May, 6 inches apart: Bloom July–October: Flowers very fragrant. Make successive sowings. Like cool soil.

**Myosotis** (Forget-me-not) — Plant March–April indoors, June outdoors, 6 inches apart: Bloom June–August: Color, blue, pink, white: Perennial, but blooms the first season. Likes shade and moist soil.

**Nasturtium** — Plant indoors April, outdoors May, 6 inches apart: Bloom June–October: Various colors: One of the best annuals.

**Nicotiana** (Tobacco plant) — Plant indoors April, outdoors May, 9 inches apart. Bloom July–October: Color, white, pink: Tall, fragrant annuals, opening toward evening.

**Pansy** — Plant indoors March–May, outdoors April–

October, 4 inches apart: Bloom April–October: Many colors: Give a rich, cool, moist soil and keep the blossoms picked.

Petunia — Plant indoors February–April, outdoors May, 6 inches apart: Bloom June–October: Color, red, pink, white: One of the most free-flowering annuals. Don't neglect watering.

Phlox (Annual) — Plant indoors March–April, outdoors May, 8 inches apart: Bloom July–October: Color, red, white, yellow, pink: One of the best low annuals.

Poppy (Annual) — Plant April, 4 inches apart: Bloom June–September: Color, red, white, pink, yellow: Very attractive. Do not transplant. Make successive sowings.

Poppy (Perennial) — Plant June–September, 9 inches apart: Bloom June–August: Color, red, white, pink, yellow: Fine to give bright colors.

Portulaca — Plant May–July, 4 inches apart: Bloom July–August: Color, red, white, pink: Unexcelled for dry, sandy and sunny spots. Close at night.

Pyrethrum — Plant June–September, 12 inches apart: Bloom July–August: Color, red, white, pink: Grow in masses. Good to cut.

Ricinus (Castor Oil Plant) — Plant indoors April, outdoors May, 36 inches apart. No bloom: Very ornamental annual. Best started in the house in pots.

Salpiglossis — Plant indoors April, outdoors, May, 6

inches apart: Bloom July–October: Color, white, brown, red: Good mid-summer annual and easy to grow.

Salvia — Plant indoors February–March, outdoors May, 18 inches apart: Bloom August–October: Color, scarlet: Give a green background and rich, sandy soil.

Scabiosa (Mourning Bride) — Plant indoors April, outdoors May, 9 inches apart: Bloom July–September: Color, white, yellow, pink: Long-flowering annual.

Stocks — Plant February–April indoors, May outdoors, 12 inches apart: Bloom July–October: Color, pink, white, scarlet, yellow: Good for beds and to cut.

Sweet Pea — Plant March–April, 3 inches apart: Bloom July–September: Many colors: Plant only in rich, moist soil. Later, mulch the roots.

Verbena — Plant indoors February–April, outdoors May, 6 inches apart: Bloom June–October: Color, white, red, blue, pink: Splendid annual for beds.

Zinnia — Plant indoors March–April, outdoors May, 6 inches apart: Bloom June–October: Color, red, yellow, white, pink: Good summer plant for beds, and quick to grow.

## CHAPTER XXXIII

### VEGETABLE PLANTING CALENDAR

THE quantity of seed given is amount needed to plant 100 feet, unless otherwise specified.

ASPARAGUS — Plant April—May: 1 oz. seed: Plant 1 inch deep, 3 to 5 inches apart: Give rich, well-drained soil.

Asparagus plants — Plant April—May: 50—80 plants: Plant 8 inches deep, 12 inches apart: Plant one-year old roots and grow two years before cutting. Mulch with manure in the fall.

Beans (bush) — Plant May—August: 1 pt. seed: Plant 2 inches deep, 3 to 6 feet apart: Make successive plantings.

Beans (pole) — Plant May:  $\frac{1}{2}$  pt. seed: Plant 2 inches deep, 3 to 4 feet apart: Plant several kinds to determine which succeeds best in your soil.

Beets — Plant April—August: 2 oz. seed: Plant 1 inch deep, 18 inches apart: Plant an abundance to allow for beet greens. Use Early Egyptian.

Cabbage (early) — Plant indoors March, outdoors May:  $\frac{1}{4}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 18

inches apart: For very early cabbages sow seed in the hot bed and transplant to cold frame in March.

Cabbage (late) — Plant May:  $\frac{1}{4}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 24 inches apart: Be sure to try the Savoy. It is unrivalled.

Carrot — Plant April-July: 1 oz. seed: Plant  $\frac{1}{2}$  inch deep, 3 to 8 inches apart: Grow French Forcing and plant for a succession. Danvers Half-long is good for winter.

Cauliflower — Plant indoors March, outdoors May:  $\frac{1}{4}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 20 inches apart; Likes a cool, rich moist soil.

Celery — Plant indoors March, outdoors May-June:  $\frac{1}{4}$  oz. seed:  $\frac{1}{8}$  inch deep, 4 to 8 inches apart: Grow Paris Golden for an early crop and Boston Market later.

Corn — Plant indoors April, outdoors May-June:  $\frac{1}{4}$  pt. seed: Plant  $1\frac{1}{2}$  inches deep, 30 to 35 inches apart: Golden Bantam planted every two weeks will give a long succession.

Cucumber — Plant indoors March, outdoors April-July:  $\frac{1}{2}$  oz. seed: Plant 1 inch deep in hills 4 feet apart: Get early "cukes" by starting seeds in the house or in a cold frame.

Egg Plant — Plant indoors March, outdoors April-May:  $\frac{1}{3}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 16 to 24 inches apart: Needs a long season.

Endive — Plant April-September: 1 oz. seed: Plant  $\frac{1}{2}$  inch deep, 6 to 12 inches apart. Grow like

lettuce, and tie up the leaves to blanch them two or three weeks before wanted.

Kale — Plant May: 1 oz. seed: Plant  $\frac{1}{2}$  inch deep, 24 inches apart: Kale is best after the frost has touched it.

Lettuce — Plant indoors Feb.—March, outdoors April—Aug. 10:  $\frac{1}{2}$  oz. seed: Plant  $\frac{1}{4}$  inch deep, 6 inches apart. Must be grown rapidly to be good.

Muskmelon — Plant indoors April, outdoors May—June:  $\frac{1}{4}$  oz. for 15 hills: Plant 1 inch deep, hills 6 feet apart: Grow an early kind, like Netted Gem, in the North. Put manure in the hill.

Melon (Watermelon) — Plant May—June:  $\frac{1}{2}$  oz. seed for 15 hills: Plant 1 inch deep, hills 8 feet apart: Ask your seedsman to recommend a variety. Use manure in the hill.

Onions — Plant indoors Feb., outdoors April: 1 oz. seed: Plant  $\frac{1}{2}$  inch deep, 3 inches apart: Plant Danvers Yellow Globe and keep the ground well cultivated.

Parsley — Plant April:  $\frac{1}{2}$  oz. seed: Plant  $\frac{1}{4}$  inch deep, 6 inches apart: Soak the seed over night in lukewarm water.

Parsnip — Plant April:  $\frac{1}{2}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 6 inches apart: Use the Student in the home garden.

Peas — Plant March—June: 1 pt. seed: Plant  $2\frac{1}{2}$  inches deep and thick: Make the ground very fine and plant for a succession.

Peppers — Plant indoors March, outdoors May—June

(Set out plants)  $\frac{1}{3}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 2 feet apart: Must be started under cover.

Potato (Irish) — Plant May-June: 1 peck for 100 hills: Plant early variety 2 inches deep, late 5 inches, 12 inches or more apart: Irish Cobbler is a good early sort and Green Mountain a reliable late variety.

Pumpkin — Plant May-July:  $\frac{1}{2}$  oz. for 15 hills: Plant  $1\frac{1}{2}$  inches deep in hills 6 feet apart: Pumpkins may be planted in the corn or beside the compost heap.

Radish — Plant indoors Feb.-March, outdoors April-September: 1 oz. seed: Plant  $\frac{1}{2}$  inch deep, 2 inches apart: Plant every ten days for a long season.

Rhubarb Roots — Plant spring or fall: 30 plants: Plant 3 inches deep, 3 feet apart: Rhubarb craves heavy feeding with manure every fall.

Salsify (Oyster Plant) — Plant April: 1 oz. seed: Plant 1 inch deep, 5 inches apart: May be left in the ground like parsnips until spring.

Spinach — Plant March-May and Oct.: 1 oz. seed: Plant 1 inch deep, 3 inches apart: Sowed in the fall and covered with a light litter spinach will give an early spring crop.

Squash — Plant May-June:  $\frac{1}{2}$  oz. seed for 25 hills: Plant  $1\frac{1}{2}$  inches deep, in hills 5 feet apart: Grow on the edge of the garden and let the vines run on the grass to save garden space.

Tomato — Plant indoors March, outdoors May-June:

$\frac{1}{4}$  oz. seed for 250 plants: Plant  $\frac{1}{2}$  inch deep, 36 inches apart: Feed the plants during the season instead of making the ground very rich.

Turnip — Plant April—July:  $\frac{1}{2}$  oz. seed: Plant  $\frac{1}{2}$  inch deep, 4 inches apart: Grow Extra Early, White Milan and White Egg.

THE END

BY THE AUTHOR OF THIS BOOK

## Making the Farm Pay

This very important book tells how to get the biggest returns from the soil and make farm life more attractive and successful.

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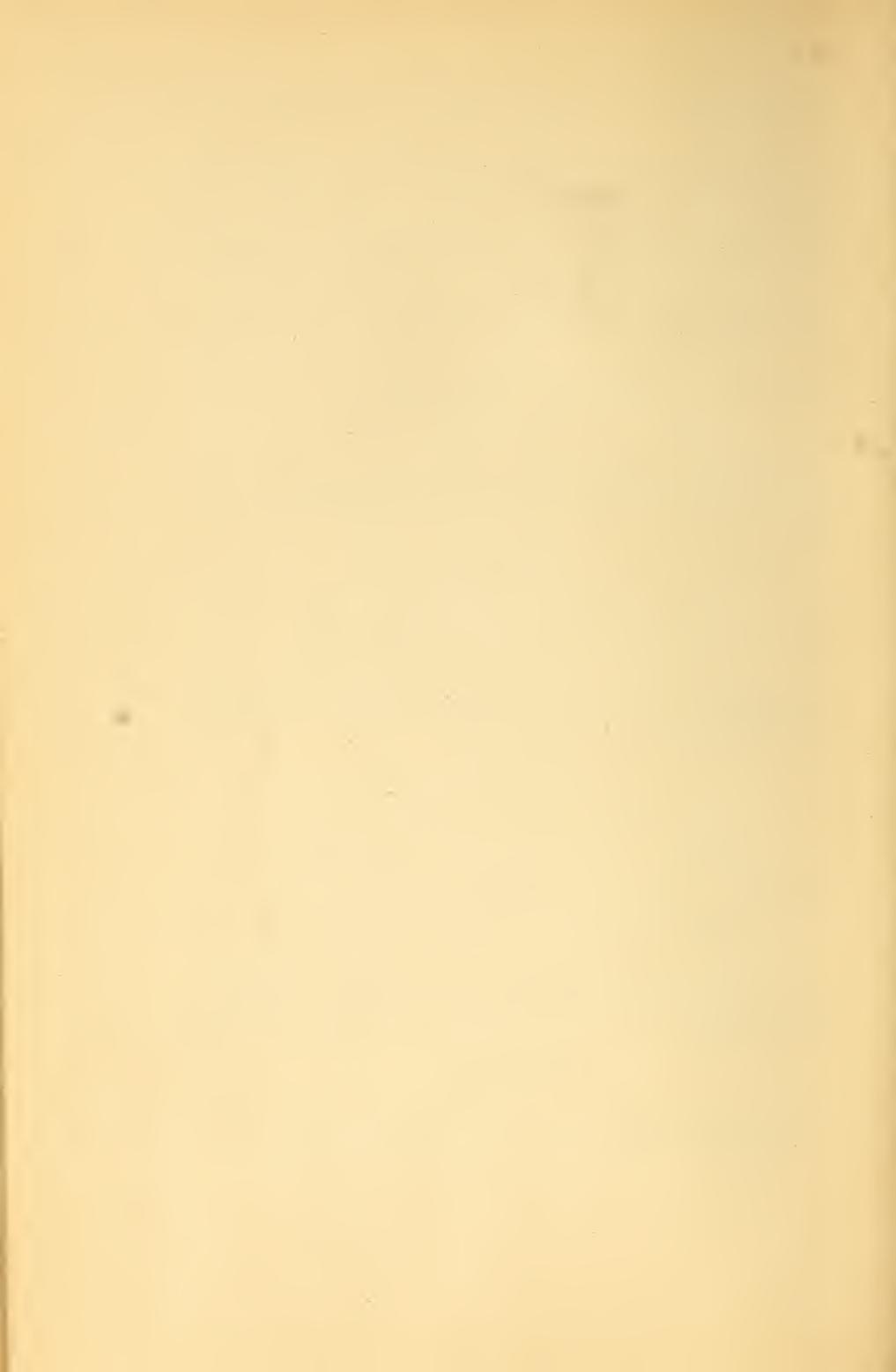
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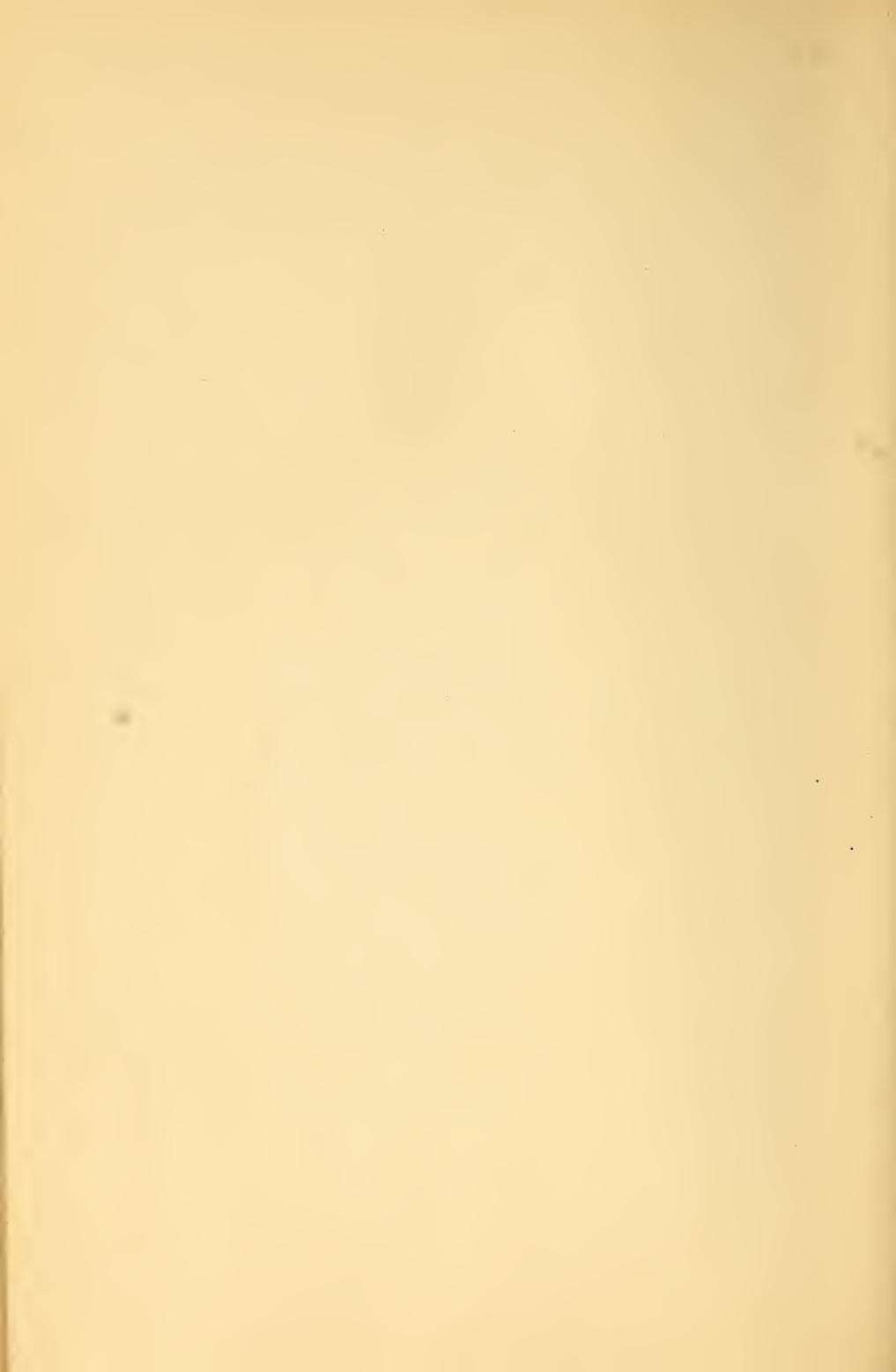
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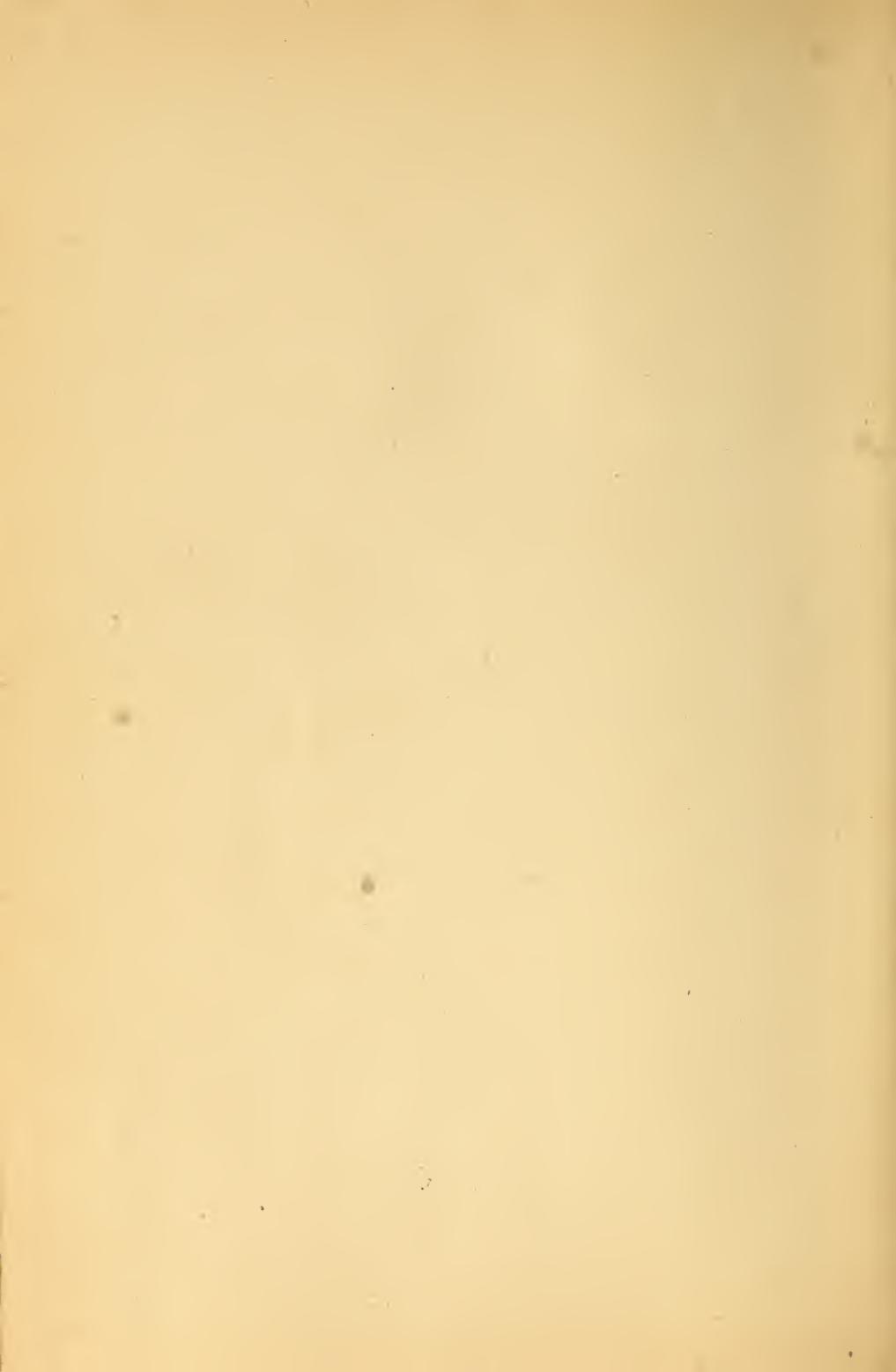
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